

United States
Department of
Agriculture

Forest Service

Pacific
Northwest
Region



Major Indicator Shrubs and Herbs in Riparian Zones on National Forests of Central Oregon.



by
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June, 1988

1988
USDA - Forest Service
Pacific Northwest Region
R6-ECOL-TP-005-88

Acknowledgements:

The authors wish to thank all those who kindly donated their time to this publication.

Thanks to Bill Hopkins and Rob Rawlings for blazing the trail with their "Major indicator shrubs and herbs on National Forests in eastern Oregon" (Hopkins and Rawlings, 1985). They developed the format for this style of guide. "Major indicator shrubs and herbs on National Forests of western Oregon and southwestern Washington" (Halverson and others, 1986) follows a similar format and was another resource for developing this guide.

Thanks to Carl Burke for illustrating some of the sketches in the glossary and Nancy Halverson, Linda Newman and Nancy Shaw for editing the document. Thanks to David Mattson for his sketch of eastwood willow.

Photo credits:

Bernard L. Kovalchik
Steven J. Brunsfeld
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Hitchcock, C. L., A. Cronquist, M. Ownberg and J. W. Thompson. 1977. Vascular plants of the Pacific Northwest. Vol. 1-5. Univ. of Washington Press. Seattle. 2978p.

Brunsfeld, S. J. and F. D. Johnson. 1985. Field guide to the willows of east-central Idaho. Forest, Wildlife, and Range Experiment Station Bull. 39. University of Idaho. Moscow. 95p.

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INTRODUCTION

General Discussion

This guide contains information for major indicator species found in riparian zones on the Deschutes, Ochoco, Fremont and Winema National Forests.

The purpose of the guide is to allow persons with a minimum of botanical training to identify the most important indicator plants in the riparian zone. Those plants used in the floristic key to the riparian associations and in naming the associations are presented in this paper. One exception is willows - all willows found on National Forests in central Oregon are included because of special interest in the management of these species. Willows were collected and verified wherever they were encountered. A dichotomous key to the willows is provided to help the reader with this difficult genus. It reflects recent taxonomy by Brunsfeld and Johnson (1985) and Dorn (1977).

One caution in using this aid for species identification is that many similar species are not described. The user needs to become familiar with all characteristics of the indicator species to avoid the mistake of listing an indicator species as present when really absent. This is especially true with sedges and other grass-like plants. Use of a complete taxonomic reference will increase proficiency in distinguishing related species. Appendix C in the riparian classification by Kovalchik (1987) gives a more complete list of the common plant species found in the riparian zones of central Oregon.

Plant associations are the groupings of plants, or plant communities, used by the Forest Service to categorize and describe vegetation. Plant associations also serve as indicators of critical environments, and thus constitute an important key to land management. Plant associations are generally identified through the use of a dichotomous key, similar to those used for plant species identification. This guide presents those plants used in plant association keys and names for riparian zone associations in central Oregon.

The species illustrated are to be used in conjunction with:

Kovalchik, B. L. Riparian zone associations of the Deschutes, Fremont, Ochoco and Winema National Forests. R6 ECOL TP-279-87. 171 p.

Copies of this and the above publication may be obtained from:

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Organization of Species Descriptions

Name: The most widely accepted common name appears at the heading on each page. Under the common name the proper scientific name appears. The alpha numeric code follows Garrison and others (1976).

Range: Describes the geographic limits within which a given species occurs as well as the distribution in central Oregon.

Indicator Value: A description of the general biological setting in which each plant occurs is provided with emphasis on either specific site condition and/or plant reaction to management.

Palatability: An important consideration for all vegetation is the apparent palatability to livestock and wildlife. The abundance of a plant in a given area can be greatly influenced by its apparent palatability. More careful examination of the site may be necessary to recognize the occurrence of those species which are highly palatable and preferred by livestock and wildlife.

Fire Sensitivity: The use of fire as a vegetation manipulation tool is becoming more prevalent. Vegetation reaction to fire has to be understood if fire is to be successfully applied. Three major characteristics are presented in this guide and follow the format outlined by Volland and Dell (1981).

- 1) Mode - The mechanism by which a plant species regenerates in response to treatment, i.e., germination of seed versus a vegetative mechanism such as underground stem sprouting.
- 2) Post Fire Regeneration Period - (Based on number of years required for the species to approximate preburn frequency, or coverage):

Slow	more than 10 years
Moderate	5-10 years
Rapid	2-5 years
Very Rapid	1-2 years

- 3) Degree of Fire Resistance - (Probability that at least 50% of the species population will survive or reestablish after passage of a fire with an average flame length of 12 inches):

Resistant	more than 65% chance
Moderate	35-64% chance
Susceptible	10-34% chance
Very Susceptible	less than 10% chance

Cultural Significance: Considerable interest has developed in recent years in regard to either economic or domestic uses of native vegetation. Indian, pioneer as well as present day uses have been outlined where information exists (Hart 1976, 1979, 1981; Murphey 1959; Robinson 1976; Scully 1970; Train and others 1941; Wheat 1967). IT MUST BE EMPHASIZED THAT THE USES OUTLINED IN THIS GUIDE HAVE BEEN DERIVED FROM LITERATURE SOURCES AND NOT ALL HAVE BEEN TESTED BY THE AUTHOR.

Description: A relatively nontechnical description is provided dealing with stature, bark characteristics, stem characteristics, leaves, flowers, and fruits. The description is enhanced by a black and white plate found on the front page of each description and a line drawing on the second page.

GLOSSARY

Definitions are specific to the use of terms in this guide. Many of these terms are illustrated in the line drawings that follow this glossary.

Achene - a dry, one-seeded, indehiscent fruit.

Acuminate - gradually tapering, pointed leaf tip.

Alkaloids - any of the usually colorless, complex and bitter organic bases containing nitrogen and usually oxygen that occur especially in seed plants.

Alternate - describes the arrangement of leaves on a stem, one leaf per node, with leaves alternating on either side of a stem.

Ament - a dense, elongate cluster of numerous, small, unisexual reduced flowers; a catkin; see pistillate and staminate.

Annual - a plant that germinates, flowers and seeds in one season.

Apiculus - an abrupt, small, generally sharp point.

Appressed - pressed flat against another organism.

Astringent - able to draw together soft organic tissues.

Auricle - a small lobe of tissue. In grasses, the small appendages on the margin of the leaf blade at the point of attachment to the sheath.

Awn - slender, generally terminal bristle such as the slender bristles that terminate or arise from the back of the husk (lemma) of grass seeds.

Axil - the angle formed by the junction of a leaf petiole and the stem.

Basal leaves - leaves found at the bottom of the stem, near the ground surface.

Blade - the "leafy" or wide, flat part of a leaf.

Bloom - light colored, usually waxy, powdery substance on the surface of a plant part.

Bog - a vegetation/soil complex in which the lower parts are dead peat, gradually changing upwards to plant tissues; usually acid, water saturated and dominated by mosses.

Bract - a modified leaf from the axil of which a flower arises.

Callus - the firm, thickened bases of the lemma in many grasses.

Capsule - a type of fruit that has more than one chamber, is dry and splits open to release the seeds. For example, the willow fruit.

Catkin - see ament.

Caudex - a short, persistent stem at or just below the ground surface.

Ciliate - fringed with hairs on the margin.

Circumboreal - occurring all the way around the northern hemisphere at high latitudes.

Clasping - describes the condition where the lower portion of a sessile leaf wraps around the stem.

Colonial - living in a colony.

Compound leaves - leaves that are distinctly divided into leaflets.

Cone - a cluster of female scales on an axis.

Cordate - shaped like a stylized heart, the notch at the base.

Corm - a short, thickened, underground stem, vertical in orientation, that functions as a food storage organ.

Corymb - a simple, racemose inflorescence that is flat-topped or round-topped.

Culm - the aerial stem of a grass or sedge.

Cyme - a broad class of inflorescences characterized by having the terminal flower bloom first.

Deciduous - falling off after completion of normal function or after a certain season or stage of growth.

Decoct - to extract by boiling.

Dentate - with spreading, pointed teeth.

Diuretic - a drug for increasing the flow of urine.

Elliptic - having roughly the shape of an ellipse. May have a pointed tip.

Entire (leaf margin) - without teeth or glands on the edge of the leaf.

Fascicle - a close bunch or cluster.

Filament - a very slender thread or fiber (for example, the basal sheaths of many sedges break during plant expansion, leaving a network of filaments from the remains of the sheath venation).

Floral bract - the small, nongreen structure associated with each flower in an ament; sometimes called a scale.

Flowering branchlet - a short to long, sometimes leafy stem that bears an ament at its tip.

Foliaceous - leafy in texture.

Foment - to treat with moist heat.

Forb - a broadleaved, herbaceous plant.

Glabrate - hairy when young, soon glabrous.

Glabrous - without hairs or glands, not pubescent.

Gland - a spot on the tip of a hair or on a plant part that produces a sticky or greasy substance.

Glaucous - covered with a removable, waxy layer that gives a whitish cast to the surface.

Glume - one of the two bracts found at the base of a grass spikelet, separated from the flowers by the lemmas.

Graminoid - any grass-like plant including grasses, sedges, rushes, etc.

Inflorescence - a cluster of flowers.

Infusion - to steep or soak in water or other fluid without boiling.

Involute - rolled up, as in the leaves of some grasses.

Keel - a sharp longitudinal ridge.

Lacerate - torn, or with a jagged margin.

Lanceolate - lance-shaped.

Leaf blade - the expanded portion of the leaf.

Leaflet - one of the divisions of a compound leaf.

Lemma - one of the pair of bracts at the base of the individual flowers in grasses.

Lenticular - lens shaped.

Ligule - in grasses, the usually membranous small flap that stands upright inside the sheath at the point of attachment of the blade.

Margin (of the leaf) - the outer edge of a leaf. It may be toothed, lobed, or entire (plain), depending on the species.

Marsh - vegetation dominated by graminoids, with the water table at or near the soil surface most of the year but with little accumulation of peat.

Mesic - cool and moist, neither wet nor dry.

Nerve - a prominent vein of a leaf or other organ.

Node - the point of attachment of a leaf on a stem.

Nutlet - a small nut; a dry (not fleshy) fruit, usually with one seed that does not open by itself.

Opposite leaves - describes the arrangement of leaves on a stem with two leaves per node, on opposite sides of the stem.

Ovary - swollen area at the base of the pistil which contains eggs or seeds. A fruit is a mature ovary.

Ovate - egg-shaped in outline.

Ovoid - shaped like a hen's egg.

Palea - one of the pair of bracts at the base of the individual flowers in grass spikelets.

Palmate - describes the arrangement of the lobes, veins or leaflets of a leaf that all arise from a common point, similar to the bones in a human hand.

Panicle - a branched cluster of flowers.

Pappus - the modified calyx crowning the ovary in the Compositae.

Peat - unconsolidated soil material composed largely of undecomposed organic matter accumulated under conditions of excessive soil moisture.

Pedicel - the stalk of a single flower.

Peduncle - the stalk of an inflorescence or of a solitary flower.

Perennial - a plant that survives more than 2 years.

Perianth - the sepals and petals (or tepals) of a flower, collectively.

Perigynium - a special bract that encloses the achene of sedges.

Petal - a member of the second set of flower leaves; colored or white and serving to attract pollinators.

Petiole - the stalk supporting a leaf blade.

Pinnate - describes the arrangement of lobes, veins or leaflets of a leaf in two rows on either side of a main axis (similar to a feather).

Pistil - the female part of a flower, generally differentiated into ovary, style and stigma.

Pistillate - a female ament or any flower or plant (with pistils but no stamens).

Pith - tissue in the center of a stem; may be spongy, soft, or hollow.

Pome - a fruit with a core, like an apple.

Pubescent - having hairs of any kind.

Purgative - to cause evacuation of the bowels.

Raceme - a more or less elongated inflorescence with the pedicels arising from the bottom upwards on an unbranched axis.

Rachilla - the axis of the spikelet in the grasses and sedges.

Rachis - a main axis, such as that of a compound leaf.

Recurved - curved backward or downward.

Retuse - with a small terminal notch in an otherwise rounded tip.

Rhizome - a lateral, underground stem. In rhizomatous plants, several apparently separate individuals may arise from one rhizome, and only excavation will reveal the fact that they are connected.

Rosette - a compact cluster of leaves, roughly circular in outline.

Saponin - chemicals, found in plants, that have the property of producing a soapy lather.

Sepal - the often green, leafy, outermost set of organs on a flower. Generally the sepals are in a ring around the outside of the petals at the base.

Scabrous - rough to the touch.

Sessile - attached directly by the base, without a stalk.

Sheath - the lower portion of a grass leaf that is rolled or folded around the stem.

Shrub - a woody perennial with multiple stems.

Simple leaves - leaves not divided into leaflets.

Sinuate - with a wavy margin.

Sorus - a cluster of spore sacs, sometimes with a covering, found on the underside of a fern leaf.

Spike - an elongated inflorescence of the racemose type, with sessile or subsessile flowers.

Sporangium - a case or container for spores.

Spores - a one-celled reproductive structure.

Stamen - the male part of a flower, divided into anther and filament.

Staminate - a male ament, flower or plant (with stamens but no pistils).

Stigma - the part of the pistil that is receptive to pollen.

Stipule - one of a pair of basal appendages found on many leaves.

Stipe - the stalk that pistils are borne on in many willow species; sometimes called a pedicel.

Strigillose - with straight, appressed hairs all pointing in the same direction.

Stolon - a long creeping stem on the ground surface, roots at nodes.

Style - the slender stalk which connects the stigma to the ovary.

Tepal - a sepal or petal, or member of an undifferentiated perianth.

Terete - cylindrical, rounded in cross-section.

Tomentose - covered with tangled, or matted, woolly hairs.

Trigonus - with three angles, triangular in cross section.

Tubercle - a small swelling or projection.

Turgid - swollen.

Umbel - a racemose inflorescence with a very short axis and more elongated pedicels which seem to arise from a common point.

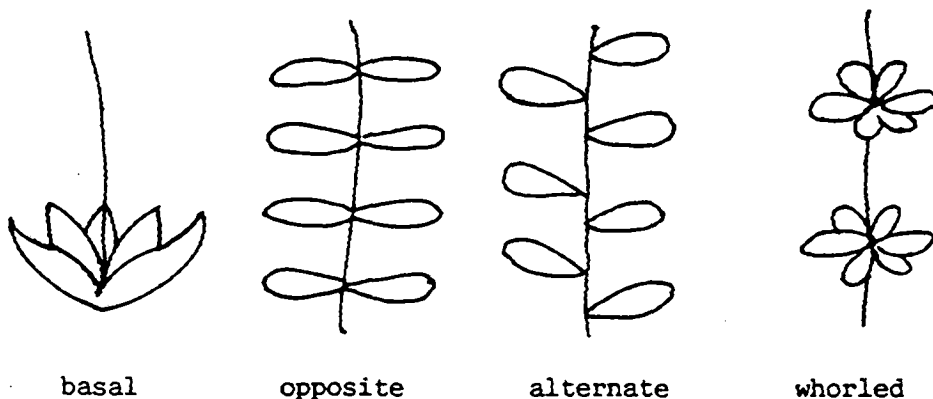
Villous - long, soft, often bent or curved but not matted hairs.

Whorled leaves - describes the leaf arrangement where several leaves (more than two) arise from a single node, usually surrounding the stem.

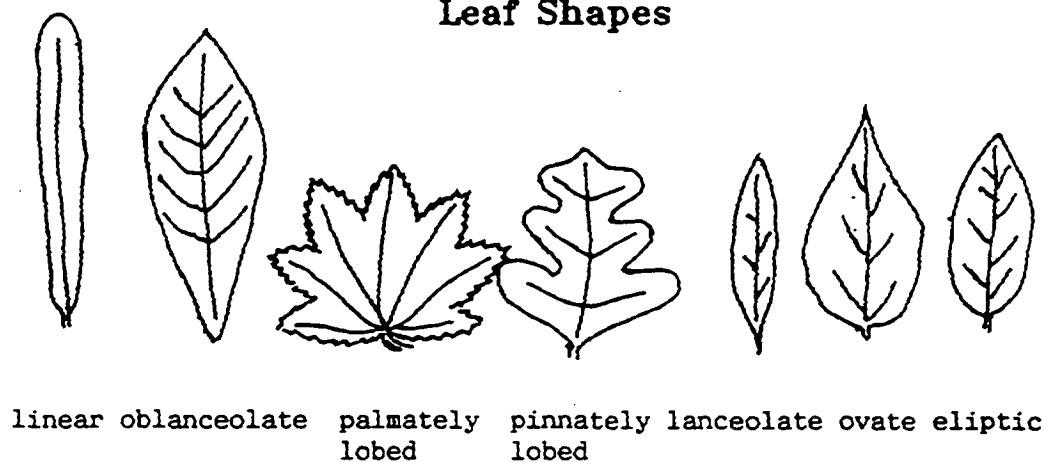
Winged - with one or more thin, flat appendages attached to the side of a structure.

Xeric - low or deficient in available moisture.

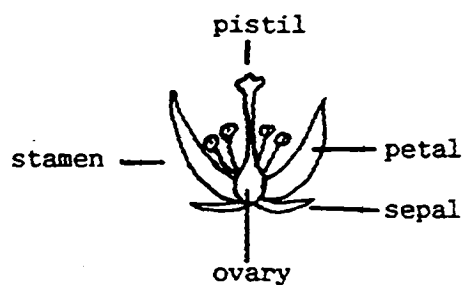
Leaf Arrangements



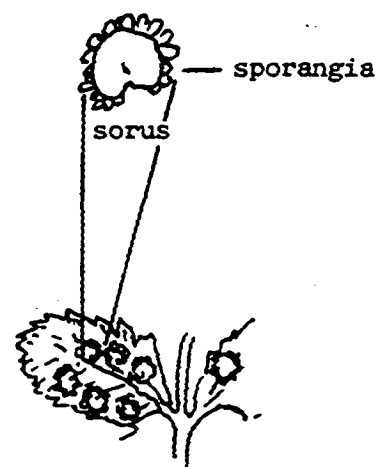
Leaf Shapes



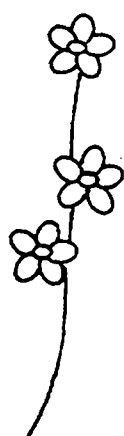
Flower Parts



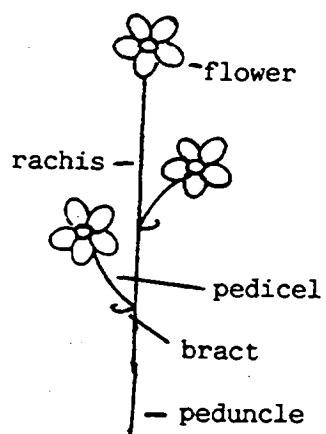
Fern Sorus



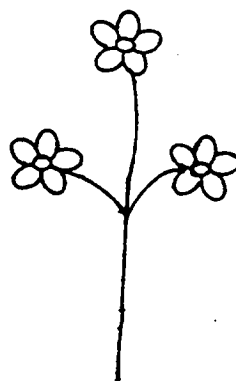
Inflorescence Types



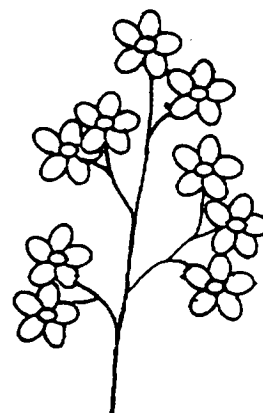
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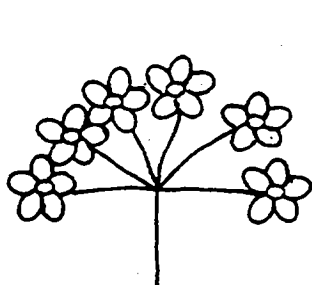
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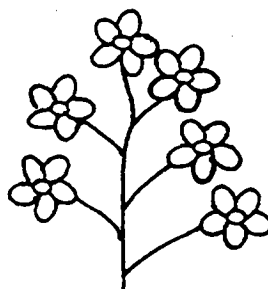
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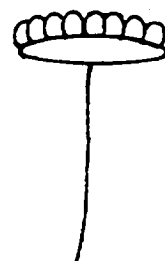
panicle



umbel

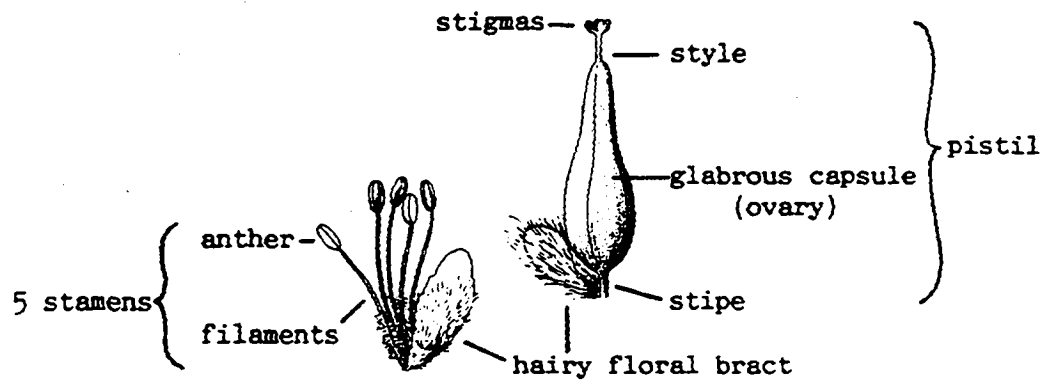
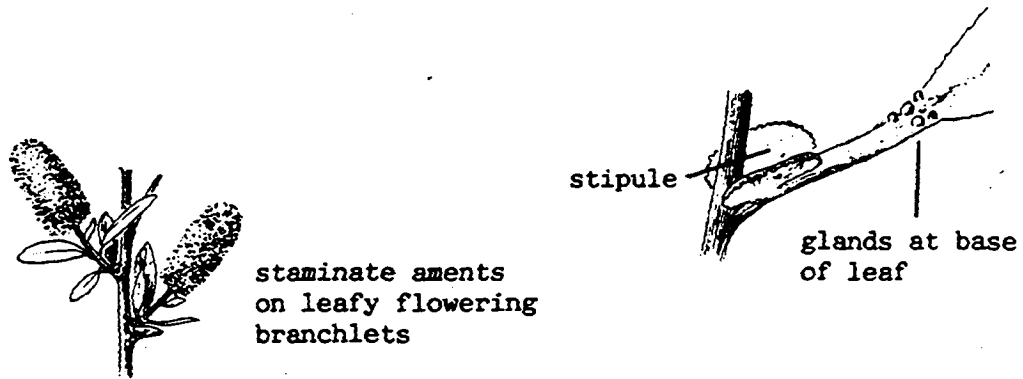
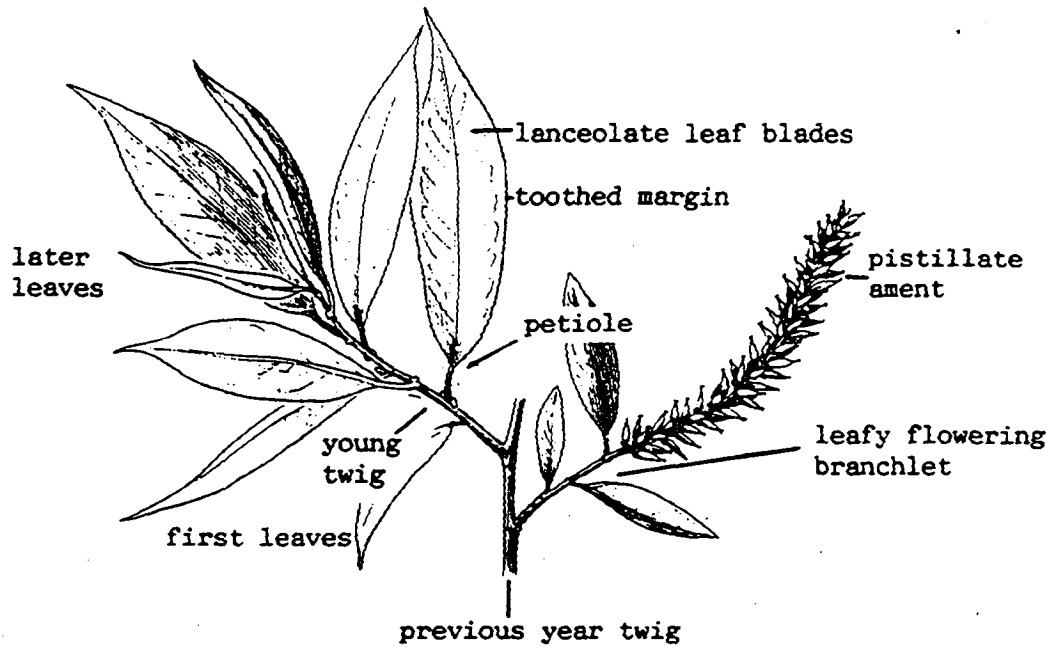


corym

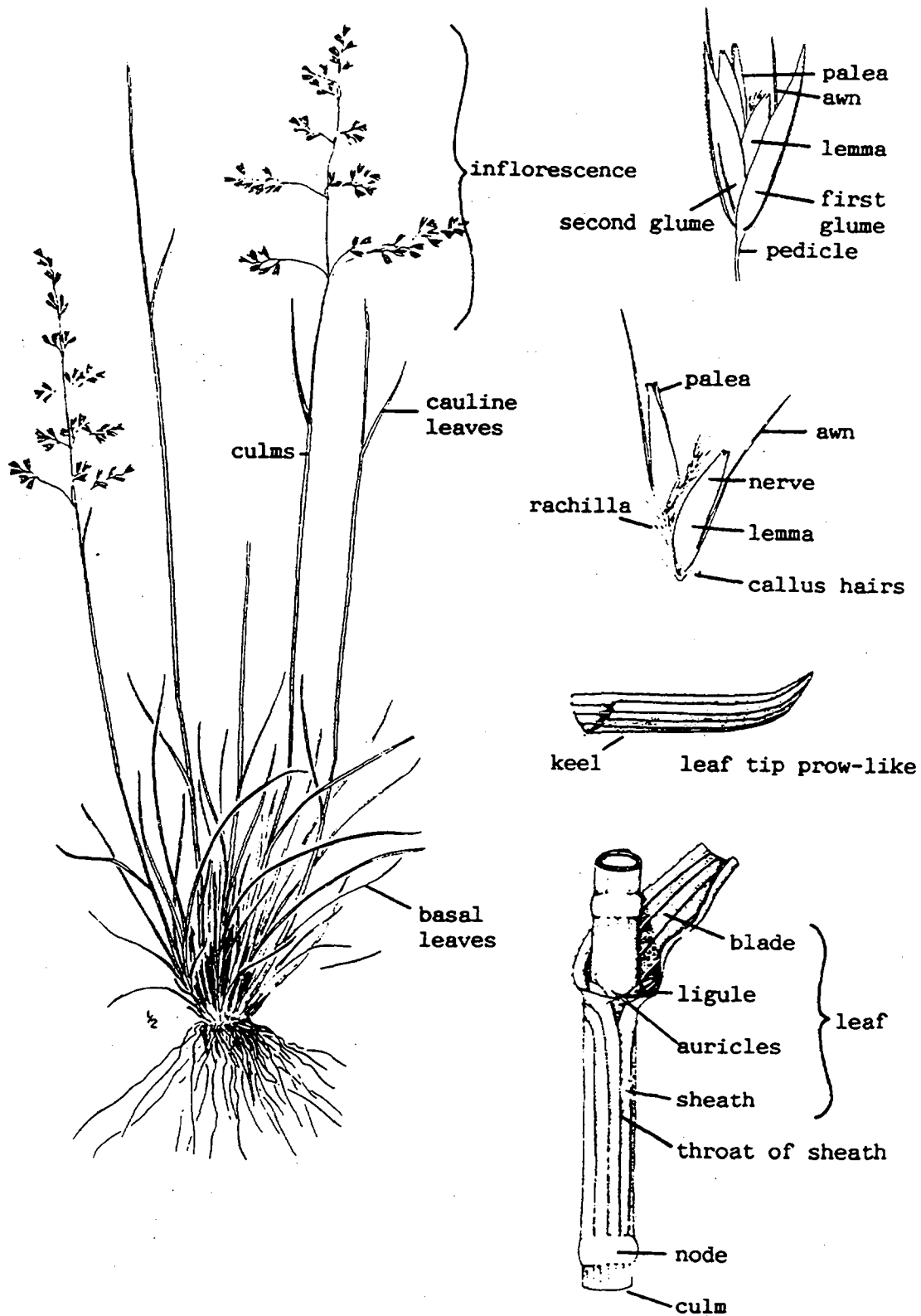


head

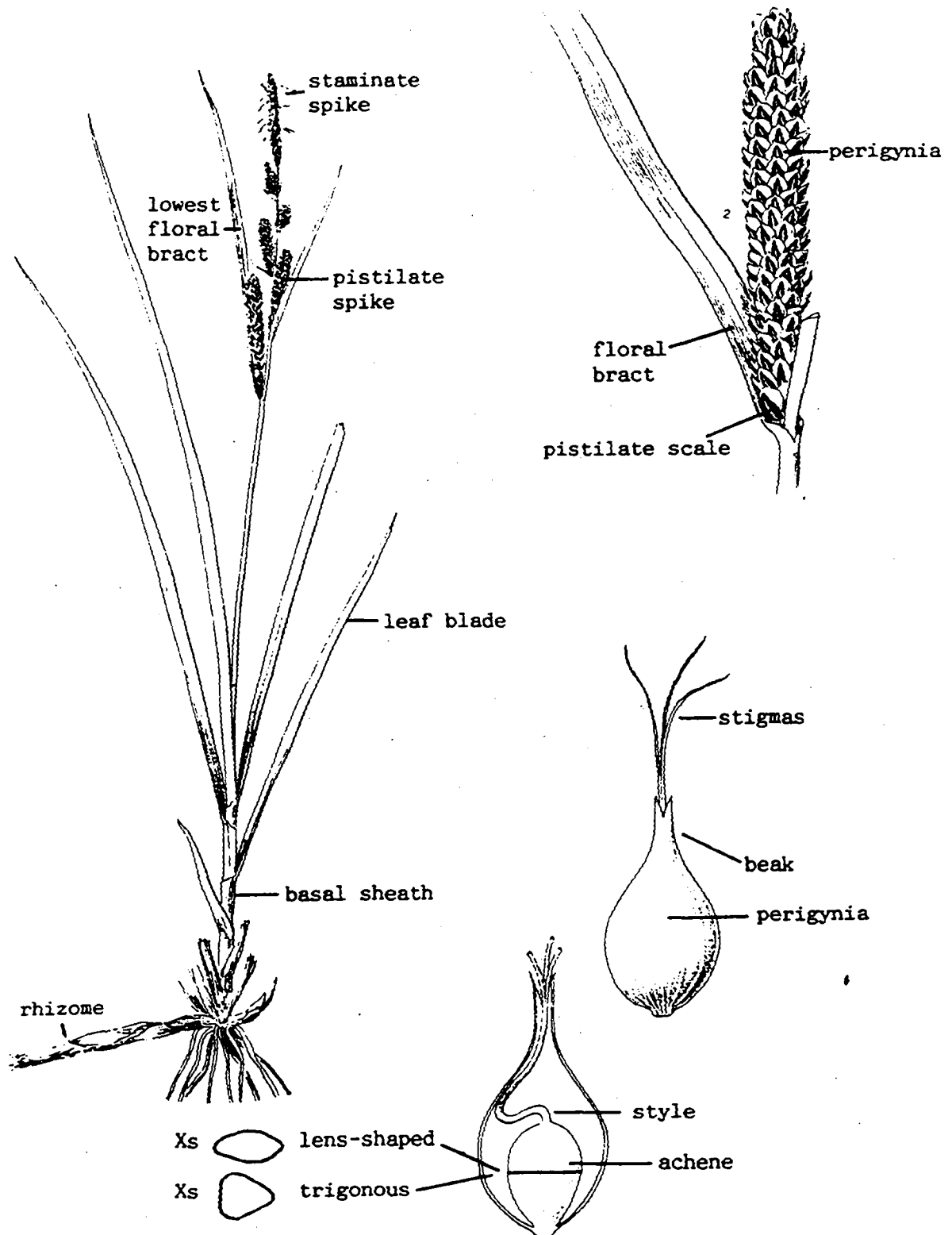
Willow Terminology



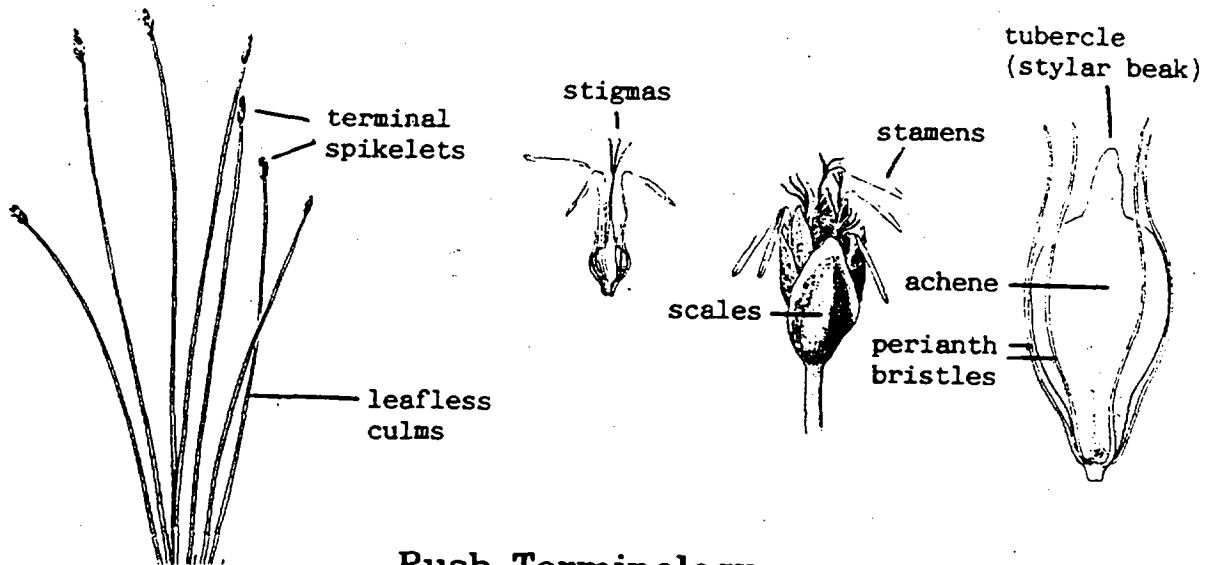
Grass Terminology



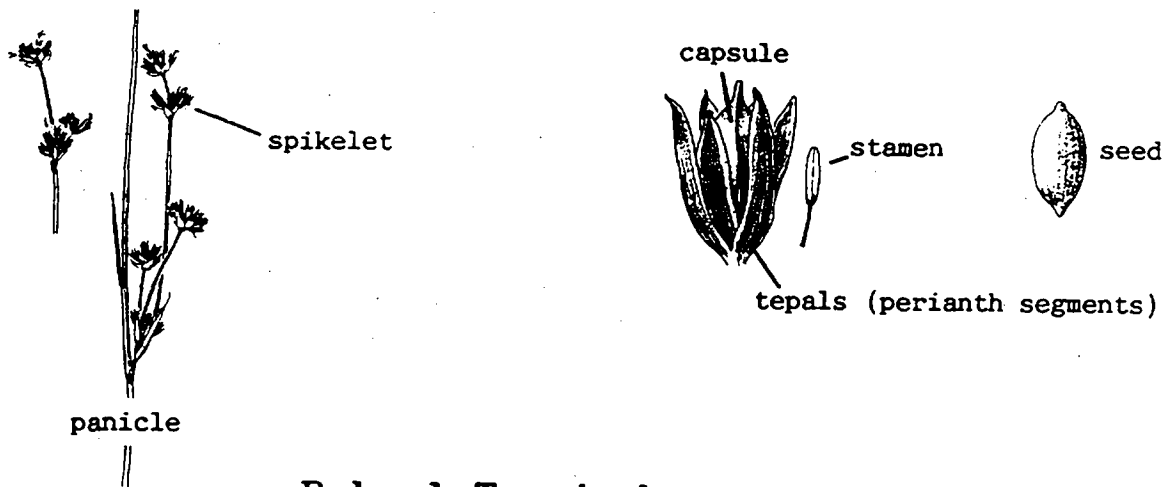
Sedge Terminology



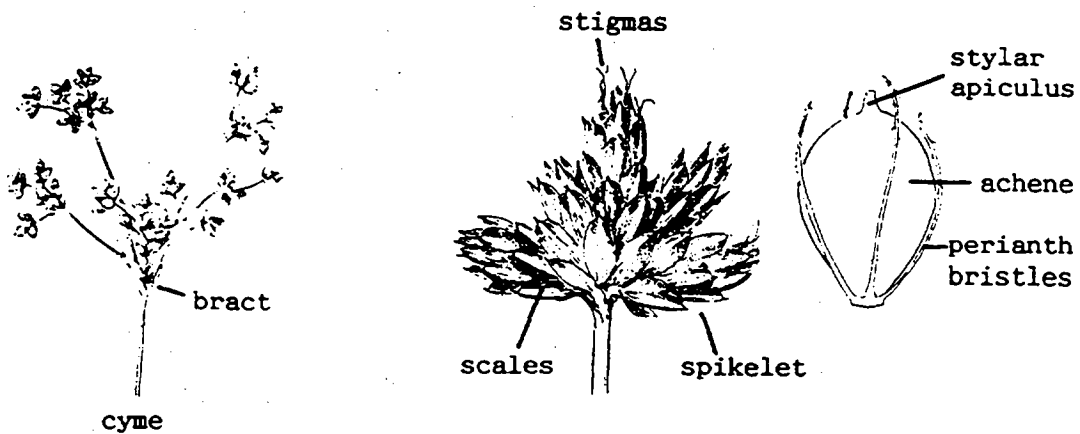
Spikerush Terminology



Rush Terminology



Bulrush Terminology



Species List by Scientific Name - Shrubs

SCIENTIFIC NAME	CODE	COMMON NAME
<i>Acer circinatum</i>	ACCI	Vine maple
<i>Alnus incana</i>	ALIN	Mountain alder
<i>Arctostaphylos uva-ursi</i>	ARUV	Bearberry
<i>Artemisia cana</i>	ARCA	Silver sagebrush
<i>A. tridentata</i> ssp. <i>vaseyana</i>	ARTRV	Big sagebrush
<i>Betula glandulosa</i>	B EGL	Bog birch
<i>Crataegus douglasii</i>	CRDO	Douglas-hawthorn
<i>Phyllodoce empetrififormis</i>	PHEM	Red mountainheath
<i>Ribes lacustre</i>	RILA	Prickly currant
<i>Salix bebbiana</i>	SABE	Bebb willow
<i>S. boothii</i>	SABO	Booth willow
<i>S. commutata</i>	SACO2	Undergreen willow
<i>S. drummondiana</i>	SADR	Drummond willow
<i>S. eastwoodiae</i>	SAEA	Eastwood willow
<i>S. exigua</i> ssp. <i>exigua</i>	SAEXE	Coyote willow
<i>S. geyeriana</i> var. <i>geyeriana</i>	SAGEG	Geyer willow
<i>S. geyeriana</i> var. <i>meleiana</i>	SAGEM	Geyer willow
<i>S. lasiandra</i> var. <i>caudata</i>	SALAC	Whiplash willow
<i>S. lasiandra</i> var. <i>lasiandra</i>	SALAL	Pacific willow
<i>S. lemmonii</i>	SALE	Lemmon willow
<i>S. lutea</i> complex	SALU	Yellow willow
<i>S. scouleriana</i>	SASC	Scouler willow
<i>S. sitchensis</i>	SASI2	Sitka willow
<i>Spiraea douglasii</i>	SPDO	Douglas spiraea
<i>S. pyramidata</i>	SPPY	Pyramid spiraea
<i>Symphoricarpos albus</i>	SYAL	Common snowberry
<i>Vaccinium occidentale</i>	VAOC2	Bog blueberry

Species List by Scientific Name - Forbs

SCIENTIFIC NAME	CODE	COMMON NAME
<i>Aconitum columbianum</i>	ACCO	Monkshood
<i>Clintonia uniflora</i>	CLUN	Queencup beadlelily
<i>Equisetum arvense</i>	EQAR	Common horsetail
<i>Galium triflorum</i>	GATR	Sweetscented bedstraw
<i>Ligusticum grayii</i>	LIGR	Gray licoriceroot
<i>Pedicularis groenlandica</i>	PEGR	Elephanthead
<i>Saxifraga oregana</i>	SAOR	Bog saxifrage
<i>Senecio triangularis</i>	SETR	Arrowleaf groundsel
<i>Spiranthes romanzoffiana</i>	SPRO	Hooded ladies-tresses
<i>Streptopus amplexifolius</i>	STAM	Claspleaf twistedstalk
<i>S. roseus</i>	STRO	Rosy twistedstalk
<i>Trillium ovatum</i>	TROV	White trillium
<i>Veratrum californicum</i>	VECA	California falsehellebore

Species List by Common Name - Shrubs

COMMON NAME	CODE	SCIENTIFIC NAME
Bearberry	ARUV	Arctostaphylos uva-ursi
Bebb willow	SABE	Salix bebbiana
Big sagebrush	ARTRV	Artemisia tridentata ssp. vaseyana
Bog birch	B EGL	Betula glandulosa
Bog blueberry	VAOC2	Vaccinium occidentale
Booth willow	SABO	Salix boothii
Common snowberry	SYAL	Symphoricarpos albus
Coyote willow	SAEXE	Salix exigua ssp. exigua
Douglas-hawthorn	CRDO	Crataegus douglasii
Douglas spiraea	SPDO	Spiraea douglasii
Drummond willow	SADR	Salix drummondiana
Eastwood willow	SAEA	Salix eastwoodiae
Geyer willow	SAGEG	Salix geyeriana var. geyeriana
Geyer willow	SAGEM	Salix geyeriana var. meleiana
Lemmon willow	SALE	Salix lemmonii
Mountain alder	ALIN	Alnus incana
Pacific willow	SALAL	Salix lasiandra var. lasiandra
Prickly currant	RILA	Ribes lacustre
Pyramid spiraea	SPPY	Spiraea pyramidata
Red mountainheath	PHEM	Phyllodoce empetrifomis
Scouler willow	SASC	Salix scouleriana
Silver sagebrush	ARCA	Artemisia cana
Sitka willow	SASI2	Salix sitchensis
Undergreen willow	SACO2	Salix commutata
Vine maple	ACCI	Acer circinatum
Whiplash willow	SALAC	Salix lasiandra var. caudata
Yellow willow	SALU	Salix lutea complex

Species List by Common Name - Forbs

COMMON NAME	CODE	SCIENTIFIC NAME
Arrowleaf groundsel	SETR	Senecio triangularis
Bog saxifrage	SAOR	Saxifraga oregana
California falsehellebore	VECA	Veratrum californicum
Claspleaf twistedstalk	STAM	Streptopus amplexifolius
Common Horsetail	EQAR	Equisetum arvense
Elephanthead	PEGR	Pedicularis groenlandica
Gray licoriceroot	LIGR	Ligusticum grayii
Hooded ladies-tresses	SPRO	Spiranthes romanzoffiana
Monkshood	ACCO	Aconitum columbianum
Queencup beadlily	CLUN	Clintonia uniflora
Rosy twistedstalk	STRO	Streptopus roseus
Sweetscented bedstraw	GATR	Galium triflorum
White trillium	TROV	Trillium ovatum

Species List by Scientific Name - Grasses

SCIENTIFIC NAME	CODE	COMMON NAME
<i>Calamagrostis canadensis</i>	CACA	Bluejoint reedgrass
<i>Deschampsia cespitosa</i>	DECE	Tufted hairgrass
<i>Elymus glaucus</i>	ELGL	Blue wildrye
<i>Poa cusickii</i>	POCU	Cusick bluegrass
<i>Poa pratensis</i>	POPR	Kentucky bluegrass

Species List by Scientific Name - Sedges and Rushes

SCIENTIFIC NAME	CODE	COMMON NAME
<i>Carex amplifolia</i>	CAAM	Bigleaf sedge
<i>C. aquatilis</i>	CAAQ	Aquatic sedge
<i>C. breweri</i>	CABR	Brewer sedge
<i>C. eurycarpa</i>	CAEU	Widefruit sedge
<i>C. interrupta</i>	CAIN3	Green-fruited sedge
<i>C. lanuginosa</i>	CALA3	Woolly sedge
<i>C. lasiocarpa</i>	CALA4	Slender sedge
<i>C. nebraskensis</i>	CANE	Nebraska sedge
<i>C. nigricans</i>	CANI2	Black alpine sedge
<i>C. rostrata</i>	CAR02	Beaked sedge
<i>C. scopulorum</i>	CASC5	Holm's sedge
<i>C. simulata</i>	CASI2	Short-beaked sedge
<i>C. sitchensis</i>	CASI3	Sitka sedge
<i>C. vesicaria</i>	CAVE	Inflated sedge
<i>Eleocharis palustris</i>	ELPA	Creeping spikerush
<i>E. pauciflora</i>	ELPA2	Few-flowered spikerush
<i>Juncus balticus</i> var. <i>balticus</i>	JUBAB	Baltic rush
<i>J. drummondii</i>	JUDR	Drummond rush
<i>J. nevadensis</i> var. <i>columbianus</i>	JUNEC	Nevada rush
<i>J. nevadensis</i> var. <i>nevadensis</i>	JUNEN	Nevada rush
<i>Scirpus microcarpus</i>	SCMI	Small-fruit bulrush

Species List by Common Name - Grasses

COMMON NAME	CODE	SCIENTIFIC NAME
Blue wildrye	ELGL	<i>Elymus glaucus</i>
Bluejoint reedgrass	CACA	<i>Calamagrostis canadensis</i>
Cusick bluegrass	POCU	<i>Poa cusickii</i>
Kentucky bluegrass	POPR	<i>Poa pratensis</i>
Tufted hairgrass	DECE	<i>Deschampsia cespitosa</i>

Species List by Common Name - Sedges and Rushes

COMMON NAME	CODE	SCIENTIFIC NAME
Aquatic sedge	CAAQ	<i>Carex aquatilis</i>
Beaked sedge	CAR02	<i>C. rostrata</i>
Bigleaf sedge	CAAM	<i>C. amplifolia</i>
Black alpine sedge	CANI2	<i>C. nigricans</i>
Brewer sedge	CABR	<i>C. breweri</i>
Green-fruited sedge	CAIN3	<i>C. interrupta</i>
Holm's sedge	CASC5	<i>C. scopulorum</i>
Inflated sedge	CAVE	<i>C. vesicaria</i>
Nebraska sedge	CANE	<i>C. nebraskensis</i>
Short-beaked sedge	CASI2	<i>C. simulata</i>
Sitka sedge	CASI3	<i>C. sitchensis</i>
Slender sedge	CALA4	<i>C. lasiocarpa</i>
Widfruit sedge	CAEU	<i>C. eurycarpa</i>
Woolly sedge	CALA3	<i>C. lanuginosa</i>
Creeping spikerush	ELPA	<i>Eleocharis palustris</i>
Few-flowered spikerush	ELPA2	<i>E. pauciflora</i>
Baltic rush	JUBAB	<i>Juncus balticus</i> var. <i>balticus</i>
Drummond rush	JUDR	<i>J. drummondii</i>
Nevada rush	JUNEC	<i>J. nevadensis</i> var. <i>columbianus</i>
Nevada rush	JUNEN	<i>J. nevadensis</i> var. <i>nevadensis</i>
Small-fruit bulrush	SCMI	<i>Scirpus microcarpus</i>

Vine Maple

Acer circinatum

ACCI

Range: Wide distribution from Alaska to northern California, from the eastern Cascades to the coast; in the vicinity of Santiam Pass and Mount Jefferson in central Oregon.

Indicator Value: Sites with well-drained moist soils; indicates a maritime climate where moist air extends east of the Cascade crest.

Palatability: Palatable to deer and elk.

Fire sensitivity: Mode - Root caudex and stem.

Regeneration Period - Rapid.

Resistance - Moderate.

Cultural Significance: Flexible stems used in various forms by the Indians (baskets, net frames, scoops, cradles). Wood smoke used to cure meats. Horticultural value for colorful leaves in fall.



Vine Maple

Acer circinatum

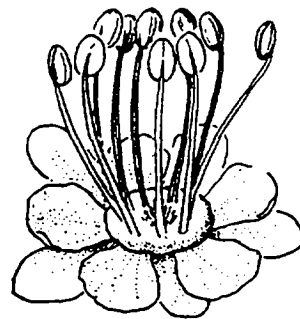
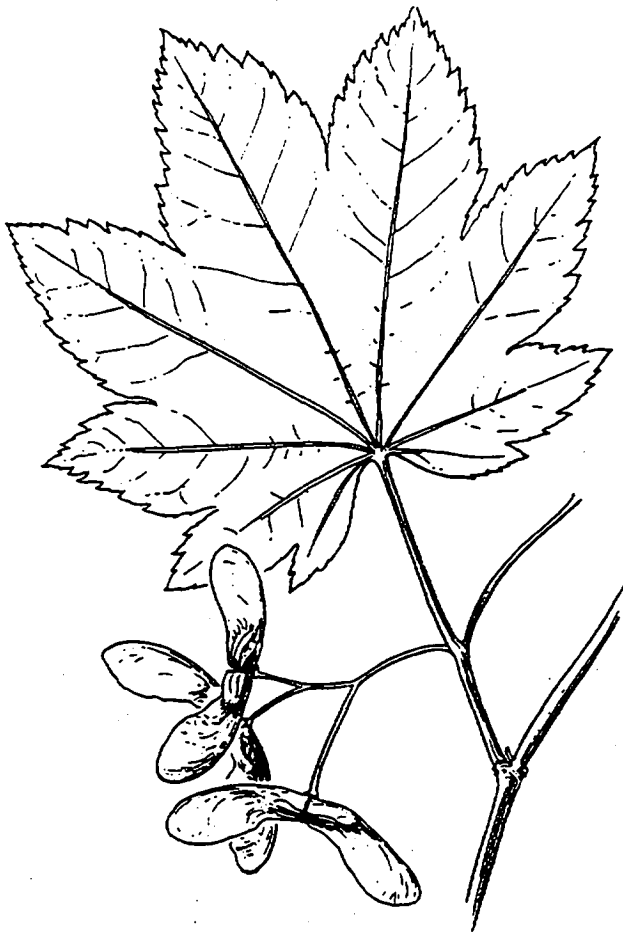
ACCI

Description: Large, upright, many-stemmed shrub or small tree to 20 feet (6.1 meters) in height, often forming dense thickets; wood very dense and hard; thin bark is grayish to green.

Leaves: Opposite, with 7 to 9 palmate lobes and finely sawtoothed margins; leaf petioles usually shorter than the leaf blades.

Flowers: Small reddish flowers on short lateral stems.

Fruit: Winged, wings widely spread to horizontal; wind dispersed.



Mountain Alder

Alnus incana

ALIN

Range: Alaska south through the Cascade Mountains to northern Sierra Nevadas, east to Alberta and south to Arizona and new Mexico; all of central Oregon.

Indicator Value: Moist, well-drained places, especially streambanks and around springs; low to moderate elevations.

Palatability: Low in palatabilty to livestock, deer and elk.

Fire sensitivity: Mode - Seed germination and basal stem sprouts.
Regeneration period - Seed germination rapid when protected from browsing. Basal sprouting if at all.
Resistance - Low.

Cultural Significance: An infusion of the bark was used to dye moccasins yellow, feathers reddish brown and human hair red. Used for treating fever. Cambium eaten in times of famine.



Mountain Alder

Alnus incana

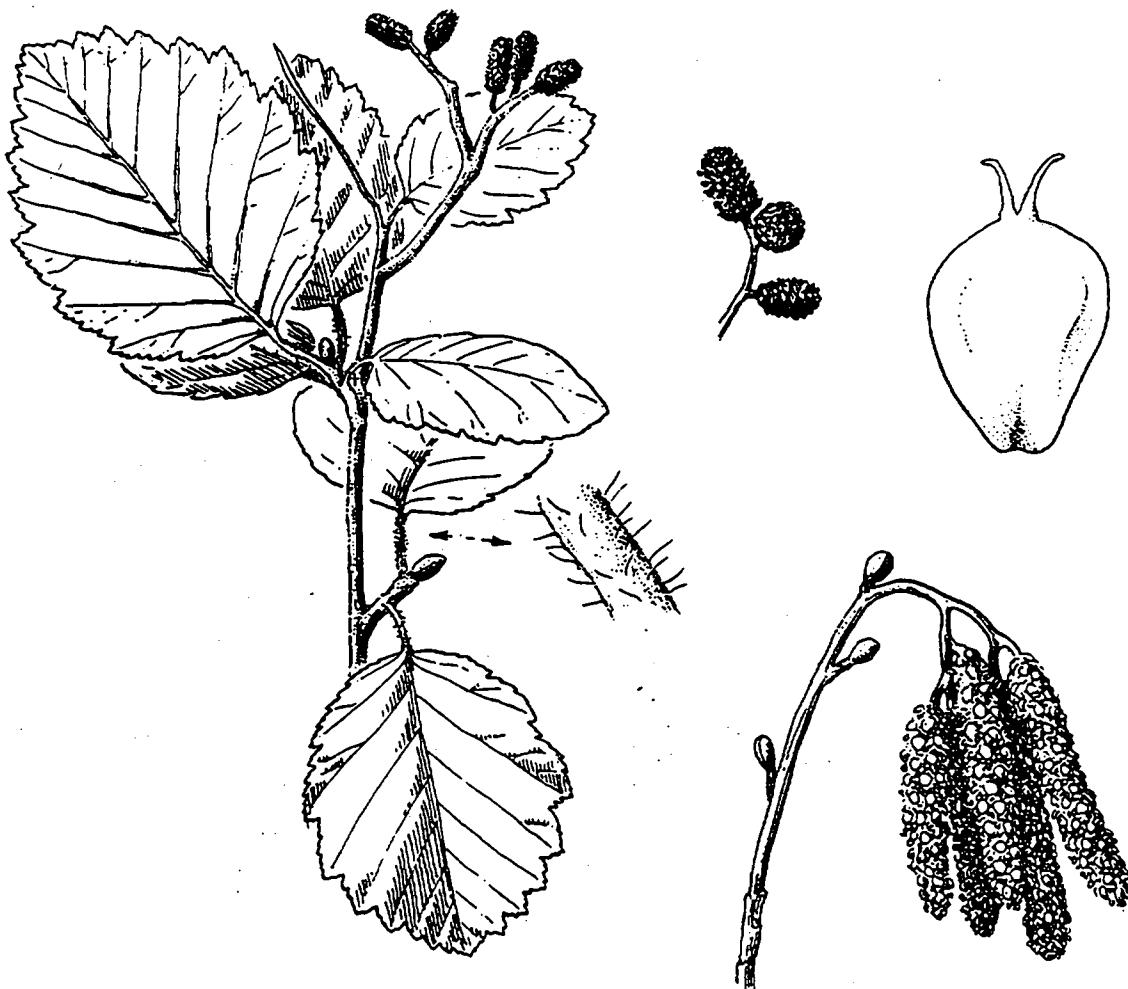
ALIN

Description: Branched shrub to 20 feet (6 meters) tall, the bark grayish-brown or reddish; young twigs, inflorescence and petioles downy-puberulent.

Leaves: Broadly elliptic or oblong-ovate, 3-7 cm long, rounded to subcordate at the base, margins serrate, upper surface green, paler beneath.

Flowers: Borne on catkins that develop before the leaves, produced on growth of the previous season.

Fruit: A tiny thin-margined nutlet, but without a wing.



Bearberry

Arctostaphylos uva-ursi

ARUV

Range: Coastal California, north to Alaska, east to middle Atlantic states.

Indicator Value: Cool lodgepole pine sites on the drier margins of the riparian zone; water table generally well below the rooting zone by September; low to moderate elevations.

Palatability: Foliage generally considered nonpalatable, but both deer and elk have been observed browsing on this trailing shrub. Berries eaten by bears and birds.

Fire sensitivity: Mode - Seed germination induced by fire and stem buds.

Regeneration Period - Moderate.

Resistance - Moderate, susceptible to hot fires.

Cultural Significance: Berries edible raw (better cooked), made into wine, jelly and jam. Indian uses include smoking the leaves, infusion of the entire plant for back pain, part of a mixture which was burnt for people going crazy and a source of tannin. A common commercial ground cover for the garden, difficult to root from cuttings.



Bearberry

Arctostaphylos uva-ursi

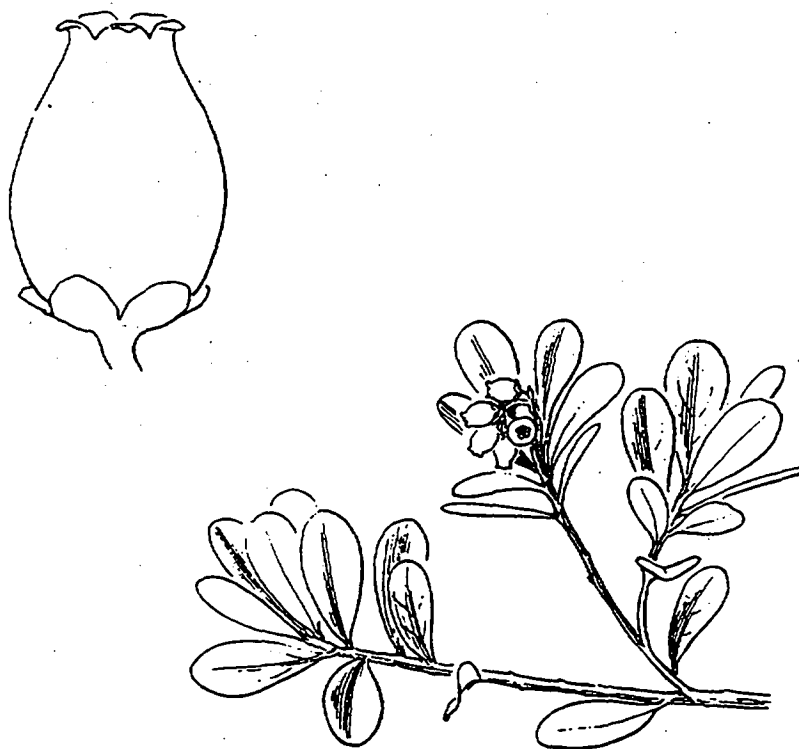
ARUV

Description: Prostrate trailing shrub to 6 inches (15 cm) in height, forming mats several meters across; reddish-brown shredding bark.

Leaves: Alternate, evergreen, smooth margins, rounded to slightly notched tip, 1.5-3 cm long.

Flowers: Urn-shaped pinkish flowers borne in short clusters, 5 mm long.

Fruit: Bright red berry-like fruit, 7-10 mm thick.



Silver Sagebrush

Artemisia cana

ARCA

Range: British Columbia to Saskatchewan, south to northern California, Utah and New Mexico; infrequent on the Deschutes and Winema and locally common on the Fremont and Ochoco National Forests.

Indicator Value: Sites generally more moist than *A. tridentata*, but often occurring together on the sagebrush/Cusick bluegrass association; lower elevations in central Oregon.

Palatability: Low in palatability for livestock, deer and elk. Moderate for antelope.

Fire sensitivity: Mode - Seed germination, basal stem sprouting.
Regeneration Period - Rapid.
Resistance - Susceptible, but resprouts.

Cultural Significance: Foliage attractive, may be transplanted to the garden.



Silver Sagebrush

Artemisia cana

ARCA

Description: Erect, branching, aromatic, herbaceous shrub to 3 feet (0.9 meters) tall; often rooting, sprouting or layering; pubescence whitish.

Leaves: Linear to narrowly elliptic or oblong, entire, dense appressed silvery hairs.

Flowers: Yellow, arranged in a relatively narrow loose head.

Fruit: Achene (dry fruit) with a short crown of hairs (pappus).



Big Sagebrush

Artemisia tridentata ssp. vaseyana

ARTRV

Range: British Columbia, south to Baja California, east to North Dakota and New Mexico; all of central Oregon.

Indicator Value: Chiefly of dry plains and hills, but extending into the riparian zone on dry floodplain soils; low to moderately high elevation.

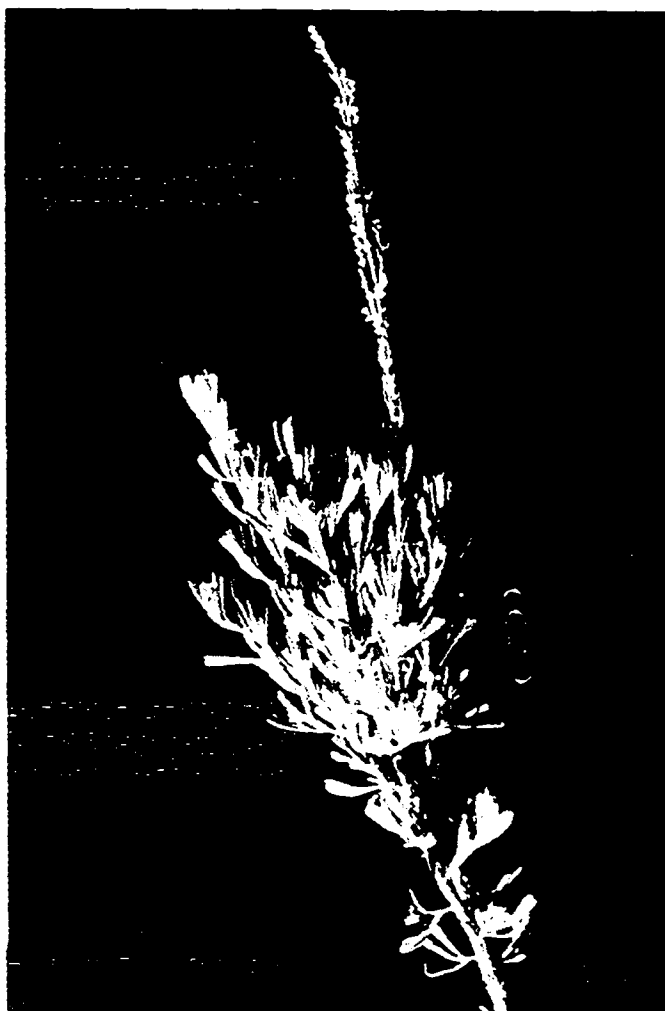
Palatability: Low to moderate palatability for livestock, deer and elk. Moderate for antelope. Important winter food supply.

Fire sensitivity: Mode - Seed germination.

Regeneration Period - Slow.

Resistance - Highly susceptible.

Cultural Significance: An infusion was drunk as a remedy for colds and pneumonia; used in constructing lodges and for tinder, firewood, mats, twine, ropes, thatch, nets, blankets and shoes.



Big Sagebrush

Artemisia tridentata ssp. *vaseyana*

ARTRV

Description: Erect, branching, aromatic shrub to 6 feet (1.8 meters) in height.

Leaves: Persisting throughout the winter, narrow, 1.5-5 cm long, 3-toothed at apex.

Flowers: Numerous yellow heads in a loose panicle.

Fruit: Achenes (dry fruit) with a short pappus.



Bog Birch

Betula glandulosa

BEGL

Range: Alaska, south to Sierran California and eastward to the northeast United States; widespread on Deschutes and Winema but scattered on the Ochoco and Fremont National Forests.

Indicator Value: Wet, often swampy and boggy places; mid to moderately high elevations.

Palatability: Low in palatability to livestock, deer, elk and beaver.

Fire sensitivity: Mode - Seed germination and basal stem sprouting.

Regeneration Period - Rapid.

Resistance - Low.

Cultural Significance: None Known.



Bog Birch

Betula glandulosa

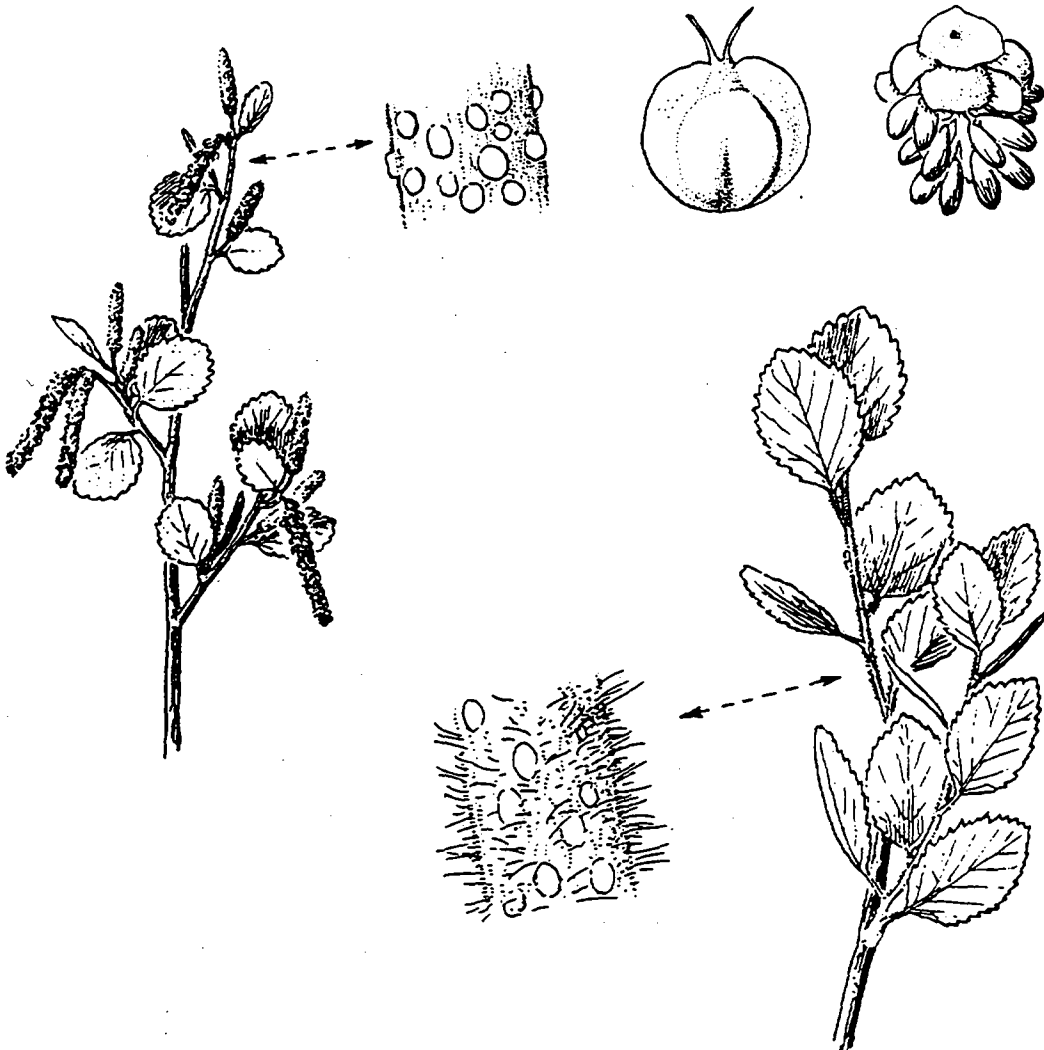
B EGL

Description: Low spreading to erect multi-stemmed shrub ranging from 2 feet (0.6 meters) tall in bogs to 10 feet (3.1 meters) tall on more well-drained sites; young branches usually densely puberulent, with resinous wart-like crystalline glands, bark becoming reddish-brown,

Leaves: Fleshy, blades mostly oval or oblong-elliptic, 1-2 cm long, thick and leathery, dark green above and paler below, serrate, glandular on both surfaces.

Flowers: Borne on rather long narrow catkins.

Fruit: A minute winged nutlet.



Douglas Hawthorn

Crataegus douglasii

CRDO

Range: Scattered in the Cascades, east to Alberta, Dakotas and northern Wyoming; occasional on Deschutes and Ochoco but not observed on Winema and Fremont National Forests.

Indicator Value: Drier floodplains in the ponderosa pine zone; low to moderate elevations.

Palatability: Low in palatability to livestock, deer and elk. Birds use berries and rodents the seeds.

Fire sensitivity: Mode - Stem sprouting and seed germination.

Regeneration Period - Moderate.

Resistance - Suseptible to moderate.

Cultural Significance: Berries eaten fresh or dried in pemmican, now for jelly and jam.



Douglas Hawthorn

Crataegus douglasii

CRDO

Description: Large shrubs or small trees to 12 feet (3.7 meters) or more tall; armed with stout, curved thorns.

Leaves: 3-6 mm long, simply once to twice serrate on the upper two thirds.

Flowers: Several showy white flowers from near the tips of lateral branchlets.

Fruit: Blackish pome about 1 cm in diameter.



Red Mountainheath

Phyllodoce empetrifomis

PHEM

Range: Alaska, south in the high mountains to California, Idaho and Montana; common on the Winema and Deschutes and rare on the Fremont National Forests.

Indicator Value: Alpine and subalpine meadows, streambanks and snowfields; course, well-aerated soils.

Palatability: Low palatability.

Fire sensitivity: Mode - Seed germination.

Regeneration Period - Slow.

Resistance - Sensitive.

Cultural Significance: None known - probably a good ground cover.



Red Mountainheath

Phyllodoce empetriformis

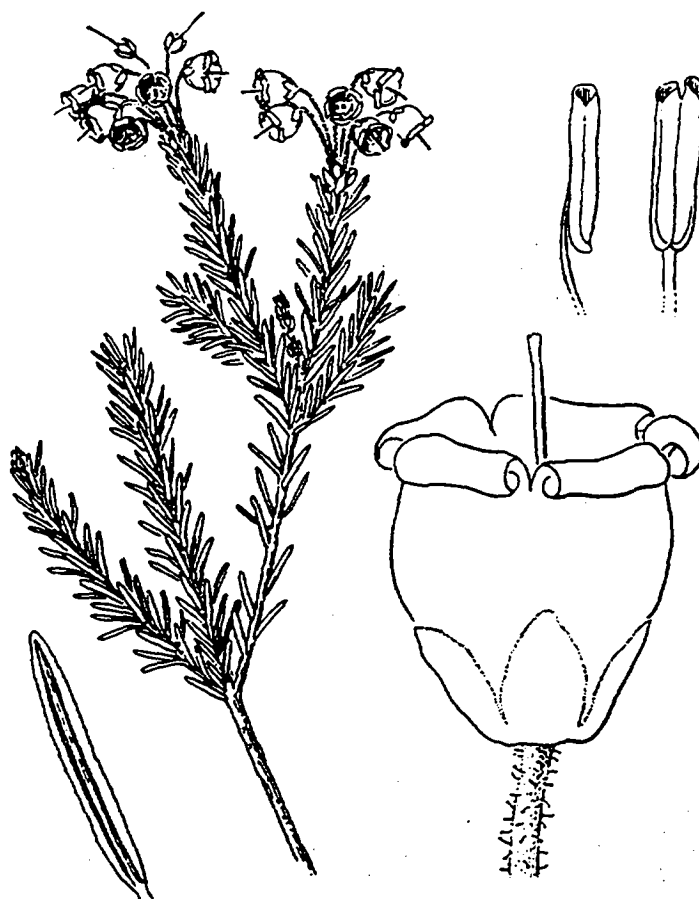
PHEM

Description: Dwarf, matted, evergreen shrubs to 1 foot (30 cm) in height; young stems hairy and glandular, less so with age.

Leaves: Alternate, narrow, evergreen or at least persistent, 8-16 mm long,

Flowers: Urn-shaped, deep pinkish-rose.

Fruit: Tiny seeds in a capsule.



Sticky Currant

Ribes lacustre

RILA

Range: Alaska to Newfoundland, south to California, Utah and Colorado; all of central Oregon.

Indicator Value: Cool moist woods and streambanks, willow meadows; low to moderately high elevations.

Palatability: Moderately palatable to livestock, deer and elk. Fruit used by birds, rodents and bears.

Fire sensitivity: Mode - Seed germination and rootstock regrowth.
Regeneration Period - Moderate.
Resistance - Moderate.

Cultural Significance: The fruit is edible but has a very unpleasant taste.



Sticky Currant

Ribes lacustre

RILA

Description: Erect to spreading shrub to 4 feet (1.2 meters) tall; woody stems finely hairy and thickly to remotely bristly with slender prickles and larger nodal spines.

Leaves: Cordate, mostly 5-lobed half the length or more and again shallowly lobed and deeply dentate, 2-5 cm broad and about as long, shiny green above, glabrous or sparsely hairy along the veins.

Flowers: Borne in drooping, 7 to 15 flowered, glandular racemes; flowers pale yellowish-green to dull reddish-brown, saucer-shaped, lined with a pinkish disk.

Fruit: Dark purple, glandular berry, 6-8 mm broad.



PISTILLATE, STAMINATE AND VEGETATIVE KEY TO THE WILLOWS OF CENTRAL OREGON NATIONAL FORESTS

- 1a. Stamens 3-8 per flower (if no staminate aments available, go to 3a); leaves glabrate on both sides, green or glaucous below, long-lanceolate, with a long-acuminate tip, the petiole often with conspicuous glands at the base of the leaf blade; stipules often foliaceous, strongly glandular; floral bracts yellowish, hairy below, deciduous; capsules glabrous; aments on long, strongly-leafed peduncles, the rachis glabrous; tall shrub to small tree; widespread; low to mod elevation
 - Salix lasiandra
 - a1. Leaves glaucous below, usually in the Cascades
var. lasiandra
 - a2. Leaves green on both sides, east of Cascades
var. caudata
- 1b. Stamens 1 or 2 per flower; other characters various 2
 - 2a. Stamens 1 per flower (if no staminate aments are available, go to 3a); leaves dark green and glabrate (sparsely hairy) above and densely silvery-hairy below; aments on short, small-leaved peduncles; capsules hairy; floral bracts dark, hairy; twigs dark, velvety; tall shrubs; Cascades
Salix sitchensis
 - 2b. Stamens 2 per flower; other characters various 3
 - 3a. Capsules pubescent 4
 - 4a. Aments sessile, without subtending leaves, or aments borne on short flowering branchlets less than 1 cm long, without or with only a few small, narrow, leafy bracts 5
 - 5a. Early season plants - aments expanding well before the leaves 6
 - 6a. Twigs of previous season glaucous, at least on protected surfaces such as behind lateral buds; mature capsules 3.0-4.0 mm long; rare (see lead 12b)
Salix drummondiana
 - 6b. Twigs of previous season not glaucous, often puberulent, at least on protected surfaces; capsules 5.0-8.0 mm long (see lead 14b)
Salix scouleriana
 - 5b. Later season plants - leaves expanding at approximately the same time as the aments 7
 - 7a. Leaves silvery below with short, dense pubescence that totally obscures the surface; east side of the Fremont N.F. (See lead 12b)
Salix drummondiana

- 7b. Leaves with scattered, fine, appressed, red-tinged hairs below, through which the surface is clearly visible; widespread (see lead 14b)

Salix scouleriana

- 4b. Aments on leafy flowering branchlets 5-20 cm long, the small to large leaves conspicuous, but occasionally deciduous by late season, the leaf scars then visible 8

- 8a. Floral bracts yellowish (sometimes light brown in S. geyeriana) 9

- 9a. Twigs of previous season glaucous at least on protected surfaces; twigs of the season glaucous at maturity; twigs puberulent; leaves small and narrow, 4-6 times as long as wide, up to 1 1/2 cm wide, green & pubescent above (tardily glabrate) and hairy and glaucous below; male aments less than 1 cm long and female aments less than 1 1/2 cm long; widespread; low to moderate elevation

Salix geyeriana

- a1. Twigs strongly glaucous; pubescence on leaves not reddish; in and east of Cascades

var. geyerianna

- a2. Twigs slightly glaucous; pubescence on leaves reddish in color; in and west of Cascades

var. meleiana

- 9b. Twigs not glaucous; other characters various 10

- 10a. Leaves linear to linear-lanceolate, more than 4 and up to 15 times as long as wide, hairy above and below, tapering to a short base less than 5 mm long; aments dense and narrow, 3-5 cm long; capsules short-beaked; floral bracts yellow, villous, narrow, pointed, deciduous; sand and gravel bars below high water line on rivers; mostly below Forest Service ownership

Salix exigua ssp. exigua

- 10b. Leaves shorter or broader, elliptic, less than 4 times as long as wide, green and glabrate above, glaucous and thinly pubescent (glabrate) below; aments shorter (1-2 cm) and looser; capsules very long-beaked; floral bracts yellow to light brown, villous, soon deciduous; twigs reddish-brown, pubescent to villous; moist basins and drainages, especially with quaking aspen; rare

Salix bebbiana

- 8b. Floral bracts brownish to blackish

11a. Undersides of leaves conspicuously discolored with dense, silvery-hairy pubescence, green and glabrate (slightly hairy) above 12

12a. Twigs dark, velvety; leaves obovate, widest towards the tip; tall shrub; moderate to moderately-high elevations in the Cascades
Salix sitchensis

12b. Twigs glaucous, glabrous; leaves long-elliptic, widest at about the middle; moderate elevation on east half of Fremont NF; rare (see leads 6a & 7a)
Salix drummondiana

11b. Underside of leaves not discolored with pubescence 13

13a. Leaves green above and glaucous below, entire, pubescent to glabrate 14

14a. Twigs of the season glaucous at maturity; leaves lance-elliptic 15

15a. Mature leaves glabrous above; twigs of the season glabrous to sparsely hairy; floral bracts broad, dark, long-hairy; leaves narrowly lance-elliptic (but wider than S. geyeriana); shrubs to 12 feet tall; low to moderate elevations; widespread Salix lemmonii

15b. Mature leaves hairy above; twigs of the season moderately to densely hairy; floral bracts usually pale, narrow, short-hairy (see lead 9a)
Salix geyeriana

a1. Twigs strongly glaucous; pubescence on leaves not reddish; in and east of Cascades var. geyeriana

a2. Twigs slightly glaucous; pubescence on leaves reddish in color; in and west of Cascades var. meleiana

14b. Twigs not glaucous, thinly pubescent to glabrous, the stripped bark with a skunky odor; leaves obovate, widest towards tip, with scattered, fine, appressed, reddish-tinged hairs on the lower surface; aments appear before the leaves, soon deciduous; tall shrubs to 30 feet tall; widespread, mostly in uplands (see lead 6b)

Salix scouleriana

13b. Leaves equally green and hairy on both sides (varying to glabrate on both sides or hairy below, the various combinations even occurring on the same plant), elliptic to oblanceolate, the margins gland-toothed at least when young; twigs dark to olive, villous; shrubs mostly less than 6 feet tall; often on bogs, where less than 2 feet tall, taller on well-drained soil; moderate to moderately-high elevations; widespread

Salix eastwoodiae

3b. Capsules glabrous

16

16a. Floral bracts pale or yellow, deciduous; leaves lanceolate, long-acuminate, the leaf base tapering to the petiole (see lead 1a)

Salix lasiandra

a1. Leaves glaucous below, usually in the Cascades

var. lasiandra

a2. Leaves green on both sides, east of Cascades

var. caudata

16b. Floral bracts brown to black, persistent; leaves elliptic or, if lanceolate, the base of the blade abruptly rounded or cordate

17

17a. Leaf blades green above and glaucous below at maturity, glabrous to quickly glabrate, lance-elliptic to lanceolate, acuminate to long-acuminate, the base abruptly contracted to the petiole (rounded to cordate); tall shrubs; low to moderate elevation; widespread

Salix lutea complex

(S. rigida var. mackensiana in Hitchcock 1964)

(S. lutea in Dorn 1977)

17b. Leaves not glaucous below, both sides green

18

- 18a. Both sides of leaves and twigs of season with spreading hairs; flowering branchlets 10-25 mm long, strong-leaved; twigs dark, tomentose; moderate to high elevation; mostly in the Cascades, also in higher mountains to the east

Salix commutata

- 18b. Both sides of leaves green and glabrate; twigs glabrate; flowering branchlets less than 10 mm long

19

- 19a. Leaves thin and somewhat translucent, the base round to cordate, long-lanceolate, long-acuminate; pedicel of capsules 2-4 mm long; tall shrub; low to moderate elevation; east of Cascades (see lead 17a)

Salix lutea complex

(S. monochroma in Dorn 1977)

(S. rigida var. monochroma in Hitchcock 1964)

- 19b. Leaves thicker, the base tapering, elliptic to lanceolate; pedicel of capsules shorter; shrubs less than 3 feet tall in bogs, up to 12 feet tall on well-drained soils; low elevation to alpine; widespread

Salix boothii

(S. myrtillofolia var. myrtillofolia
and caudata in Hitchcock 1964)

VEGETATIVE KEY TO THE WILLOWS OF CENTRAL OREGON NATIONAL FORESTS (For use with plants with fully expanded leaves)

- 1a. Leaf blades linear or nearly so, up to 15 times as long as wide; tall shrubs forming colonies by root runners; sand and gravel bars below high water line on rivers; mostly below USFS ownership
Salix exigua ssp. exigua
- 1b. Mature leaf blades broader; runners absent; habitat various 2
 - 2a. Leaves wholly glabrous or glabrate 3
 - 3a. Leaves glaucous (waxy, gray surface) below 4
 - 4a. Leaves lance-elliptic to lanceolate, acuminate to long-acuminate, serrate; stipules leafy; twigs of the season glabrous to sparsely hairy (older twigs glabrous), but not glaucous 5
 - 5a. Leaves with rounded to cordate bases, thin and somewhat translucent; tall shrubs; low to moderate elevation; widespread
Salix lutea complex
(S. rigida var. mackensiana in Hitchcock 1964)
(S. lutea in Dorn 1977)
 - 5b. Leaf blades tapering to the petiole; petiole with conspicuous glands at the base of the blade; tall shrub or small tree; low to moderate elevations
Salix lasiandra var. lasiandra
 - 4b. Leaves somewhat narrowly lance-elliptic (but broader than S. geeyeriana), entire; stipules minute, deciduous; twigs glabrate, glaucous; shrubs to 12 feet tall; low to moderate elevations (higher in the Warner Mountains); widespread
Salix lemmonii
- 3b. Leaves green both above and below 6
 - 6a. Leaves long-lanceolate, long-acuminate, either with a round to cordate base or with prominent glands on the petiole at the base of the leaf blade 7
 - 7a. Leaves with rounded to cordate base, thin and somewhat translucent; tall shrubs; low to moderate elevation; widespread
Salix lutea complex
(S. monochroma in Dorn 1977)
(S. rigida var. monochroma in Hitchcock 1964)

- 7b. Leaf base tapering, the petiole frequently with conspicuous glands at the base of the leaf blade; tall shrubs or small trees; low to moderate elevations; usually east of the Cascades Salix lasiandra var. caudata
- 6b. Leaves elliptic to lanceolate, with a tapering base and without glands on the petiole 8
- 8a. Leaves elliptic to lanceolate, margins glandular at least when young; twigs dark and villous; shrub, often on boggy sites where less than 2 feet tall, up to 6 feet tall on well-drained soils; moderate to moderately-high elevations; widespread
Salix eastwoodiae
- 8b. Leaves elliptic to lanceolate, sometimes without glandular margins; twigs glabrate and not glaucous; shrubs to 12 feet tall, less than 3 feet tall on boggy sites; foothills to alpine; widespread
Salix boothii
(S. myrtillifolia var. myrtillifolia and caudata in Hitchcock 1964)
- 2b. Mature leaves at least in part hairy 9
- 9a. Mature leaves hairy above and below 10
- 10a. Leaves narrowly lance-elliptic to elliptic, green above and glaucous below, the margins entire; twigs of season glaucous, hairy; older twigs becoming glabrate 11
- 11a. Leaves narrowly lance-elliptic; twigs of season glaucous, hairy; older twigs glabrate, glaucous at least the second year; shrubs to 15 feet tall; low to moderate elevations; widespread Salix geyeriana
- a1. Twigs strongly glaucous; pubescence on leaves not reddish; in and east of the Cascades var. geyeriana
- a2. Twigs slightly glaucous or even glabrate; pubescence on leaves reddish in color; in and west of the Cascades var. meleiana
- 11b. Leaves elliptic; twigs of season pubescent with fine curly hairs, partially persisting on the reddish twigs of the previous season, never glaucous; rare Salix bebbiana

- 10b. Leaves never glaucous, elliptic to broadly lance-elliptic, relatively green on both sides, the margins often gland-toothed; twigs never glaucous, dark, villous to tomentose; habitat various

12

- 12a. Petioles and young twigs with loosely- to tightly-appressed hairs; leaves elliptic; stipules minute; shrubs generally less than 6 feet tall, the most common willow on boggy sites where less than 2 feet tall, taller on well-drained soils; moderate to moderately-high elevations; widespread (see lead 8a)

Salix eastwoodiae

- 12b. Petioles and young twigs with straight spreading hairs; leaves broadly elliptic; stipules foliaceous; shrubs to 9 feet tall, less than 3 feet tall on boggy sites; moderate to high elevations; mostly in the Cascades, also in higher mountains to the east

Salix commutata

- 9b. Leaves strigillose, hairy, wooly or tomentose below

13

- 13a. Leaves discolored below with dense silvery pubescence, green and glabrate (sparsely short-hairy) above

14

- 14a. Twigs generally velvety and dark; leaves obovate, widest towards the tip, may retain a few scattered hairs on the upper surface; shrubs to 15 feet tall; moderate to moderately-high elevations in the Cascades

Salix sitchensis

- 14b. Twigs glaucous and glabrous; leaves long-elliptic, widest at about the middle; shrubs to 9 feet tall; low to moderate elevations; east half of Fremont NF; rare

Salix drummondiana

- 13b. Leaves thinly pubescent to reddish-strigillose below

15

- 15a. Leaves elliptic; pubescence of the lower leaf surface white (or glabrate), that of petioles and young twigs longer, wavy or curly, loosely tangled to tightly appressed; tall shrubs; low to moderate elevations; rare

Salix bebbiana

- 15a. Leaves broadly obovate, widest towards the tip; the pubescence of the lower leaf surface partly red-tinged, that of the petioles and young twigs short and erect to appressed; tall shrubs to 30 feet tall; widespread, mostly in uplands
Salix scouleriana

Other native willows reported for central Oregon National Forests (Hitchcock and others 1964) but not encountered in this study include: S. amygdaloides, S. nivalis, S. pedicellaris, S. lasiolepis, S. woolfii and S. phylicifolia. Large introduced trees on agricultural land but not encountered in this study include S. alba var. alba and var. tristis, S. fragilis and S. pentrandra.

WILLOW COMPARISONS

Species	Habit	Twigs	Leaf Shape and Margins	Leaf Color & Pubescence	Aments	Floral Branchlets	Capsules	Floral Bracts
<i>Salix bebbiana</i> (Bebb willow)	many-stemmed shrub 15-20 ft tall, moist soil, moderate elev.	reddish-brown, not glaucous, young twigs hairy, older sparse-hairy	elliptic to elliptic-ovate, entire to slightly serrate	green above, glaucous below, with appressed hairs or glabrate on either side	expanding with leaves, 2-4 cm long	small-leaved, 2-5 mm long	long-beaked, 5-9 mm long, hairy	narrow, yellow to light brown, sparse to dense-hairy
<i>S. commutata</i> (Undergreen willow)	many-stemmed shrubs to 9 ft tall on well-drained sites, dwarfed on bogs	young twigs glabrous to hairy, glabrous by 2nd year	broad-elliptic to obovate, entire	green both sides, paler beneath, loosely fine-tomentose, less so with age	expanding with leaves, 3-5 cm long	small to large-leaved, 2-4 cm long	glabrous, 3-6 mm long	brown to black, long curly hairs
<i>S. drummondiana</i> (Drummond willow)	many-stemmed shrub to 15 ft tall, moist soil, mod elev.	green-purple, glabrous or sparse-hairy, glaucous for 1 or 2 years	elliptic to lance-elliptic, rolled margins, entire	dark green above, white pubescent and silvery beneath	expanding before leaves, sessile, 1.5-4 cm long	none	close spaced, short stipes, densely short-hairy, 3-4 mm long	brown to black, airy long-hairy
<i>S. eastwoodiae</i> (Eastwood willow)	branching shrub 6-9 ft tall on well-drained sites, dwarfed on bogs	dark to olive, sparse to dense curly-hairy	elliptic to oblanceolate, margins gland-tipped when young, entire	gray-green, hairy on either side or both to glabrate	expanding with leaves, 1.5-4 cm long	large-leaved, 8-15 mm long	sparse to densely hairy (glabrate)	brown to black, long wavy hairs
<i>S. exigua</i> (Coyote willow)	colonial shrubs to 15 (25) ft tall, gravel bars, low elev.	young twigs pubescent, glabrous and brownish 2nd year	linear, entire to serrulate-dentate, gland-toothed	gray-green to silver, pubescent, glaucous below	expanding after leaves, 3-5 cm long	very leafy, 1-20 cm long	sessile, usually hairy, 3-5 mm long	yellow, villous, deciduous
<i>S. geyeriana</i> var. <i>geyeriana</i> (Geyer willow)	many-stemmed shrub to 15 ft tall, moist-wet soil, low-mod elev.	young twigs dense-hairy, glaucous 2 or more years	narrow-elliptic, entire, 2-4.5 cm long, 8-12 mm wide	gray-green above, paler and glaucous below, hairy on both sides	expanding with leaves, only 1-1.5 cm long	leafy, to 1 cm long	short-hairy, 3-6 mm long	yellow to pale brown, short hairy
<i>S. geyeriana</i> var. <i>meleianna</i> (Geyer willow)		similar to var. <i>geyeriana</i> but less glaucous		less pubescent, the hairs rusty in color				

WILLOW COMPARISONS

Species	Habit	Twigs	Leaf Shape and Margins	Leaf Color & Pubescence	Aments	Floral Branchlets	Capsules	Floral Bracts
<i>S. lasiandra</i> var. <i>caudata</i> (Whiplash willow)	shrub or small tree 18-30 ft tall, all of central Oregon, low-mod elev.	lustrous red to olive, young twigs pubescent	lanceolate, long-acuminate, serrate, 5-11 cm long, glands on petiole	shiny green on both sides, paler below, glabrate	expanding with leaves, 2-4.5 cm long	large-leaved, 10-35 mm long	glabrous, 4-8 mm long	yellow, hairy on lower portions
<i>S. lasiandra</i> var. <i>lasiandra</i> (Pacific willow)	largely in and west of the Cascades, scattered elsewhere			like <i>S. lasiandra</i> var. <i>caudata</i> but glaucous below				
<i>S. lemmonii</i> (Lemmon willow)	many-stemmed shrubs to 15 ft tall, moist to wet soil, low-moderate elev.	young twigs sparse-hairy, very glaucous into 2nd year	lance-elliptic, entire, larger than <i>S. geeyeriana</i>	green above, pale-glaucous below, glabrate	expanding with leaves 1.5-2.5 cm long	leafy, to 1 cm long	thinly short-hairy, 3-6 mm long	brown to black, short-hairy
<i>S. lutea</i> complex (Yellow willow)	shrubs to 18 ft tall, ditches & streambanks, low-mod elev.	whitish to reddish-brown, glabrous to hairy, often glaucous	lance-elliptic, base round to cordate, fine-toothed, 2-5.5 cm long	green above, glabrous, glaucous below except in one form	expanding with leaves, 1-2.5 cm long	leafy, 2-7 mm long	glabrous	brown to black, minute, glabrous
<i>S. scouleriana</i> (Scouler willow)	shrub or small tree 15-30 ft tall, uplands, streambanks, moderate elev.	young twigs short-hairy, stripped bark with skunky odor	obovate to oblanceolate, broadest toward tip, entire	green above & glaucous below, sparse reddish hairs beneath	expanding before leaves, soon deciduous, 1.5-6 cm long	more or less sessile, if present - leaflets to 5 mm long	somewhat long-beaked, densely short-hairy, 5-8 mm long	brown to black, long-hairy
<i>S. sitchensis</i> (Sitka willow)	branched shrub to 15 ft tall, Cascades, moist soils, moderate elev.	dark brown, dense-velvety	obovate, widest toward the tip, entire	dark green above, dense velvety-white beneath	expanding with leaves, 3-8 cm long	small-leaved, to 1 cm long	densely short-hairy 3-5.5 mm long	brown to black, long-hairy

Bebb Willow

Salix bebbiana

SABE

Range: Transcontinental in Canada and northern United States, absent west of Cascades and California; rare in central Oregon.

Indicator Value: Moist basins and drainages, often in quaking aspen stands.

Palatability: Palatable to livestock, big game and beaver.

Fire sensitivity: Mode - Seed germination, basal stem sprouting.

Regeneration Period - Moderate.

Resistance - Susceptible, but resprouts.

Cultural Significance: Indians used the flexible willow stems for many kinds of implements such as baskets, arrow shafts, scoops, and fish traps. Willows provide medicine for many ailments such as cuts, indigestion, worms and stomach complaints.



Bebb Willow

Salix bebbiana

SABE

Description: Many-stemmed shrubs to 15-20 feet (4.6-6.1 meters) tall; young twigs brownish to reddish, fine wavy or curly hairs.

Leaves: Elliptic to elliptic-ovate, gray to green on both sides, variably loose-haired on both sides to glabrate on either or both sides when mature.

Flowers: Pistillate aments 2-4 mm long, expanding with the leaves; floral branchlets 2-5 mm long, small leaved; floral bracts narrow, yellow to light brown, hairy.

Fruit: Capsules distinctively long-beaked, hairy.



Booth Willow

Salix boothii

SABO

Range: Alaska to Newfoundland, south to California, Utah and Wyoming; all of central Oregon.

Indicator Value: On a wide variety of moist to wet places such as shrub meadows, streambanks, swamps and bogs; low to high elevations.

Palatability: Highly palatable to livestock, deer, elk and beaver.

Fire sensitivity: Mode - Seed germination, basal stem sprouts.

Regeneration Period - Moderate.

Resistance - Susceptible, but resprouts.

Cultural Significance: Indians used the flexible willow stems for many kinds of implements such as baskets, arrow shafts, scoops and fish traps. Willows provide medicine for many ailments such as cuts, indigestion, worms and stomach complaints; used as an eyewash.



Booth Willow

Salix boothii

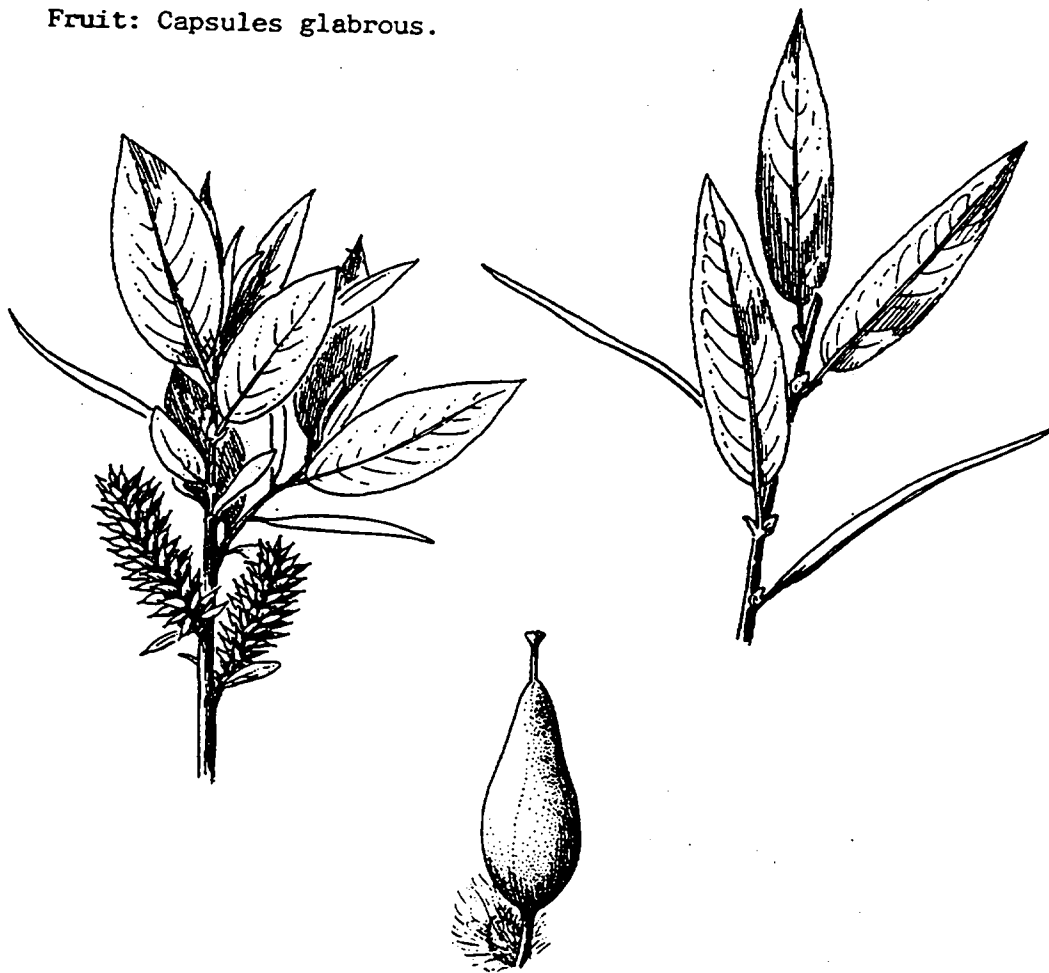
SABO

Description: A many-branched shrub to 10 or 15 feet (3-4.6 meters) in height on well-drained sites (much shorter at high elevations and less than 3 feet tall in bogs); young twigs glabrous to moderately pubescent, glabrous by second year.

Leaves: Broadly elliptic to lanceolate, firm and thick, green above, paler green below but not glaucous, 2.5-6 cm long, 8-22 mm wide; margins with fine gland-tipped teeth at least when young; pubescent only when young, quickly glabrate.

Flowers: Staminate aments 1-2.5 cm long, pistillate aments 2-4 cm long; floral branchlets 1-3 mm long, small-leaved; floral bracts brown to black, long curly hairs.

Fruit: Capsules glabrous.



Undergreen Willow

Salix commutata

SAC02

Range: Southern Alaska and Yukon, south to Oregon, Idaho and western Montana; somewhat common in the Cascades but scattered elsewhere in central Oregon.

Indicator Value: Marshes and boggy areas; moderate to high elevations.

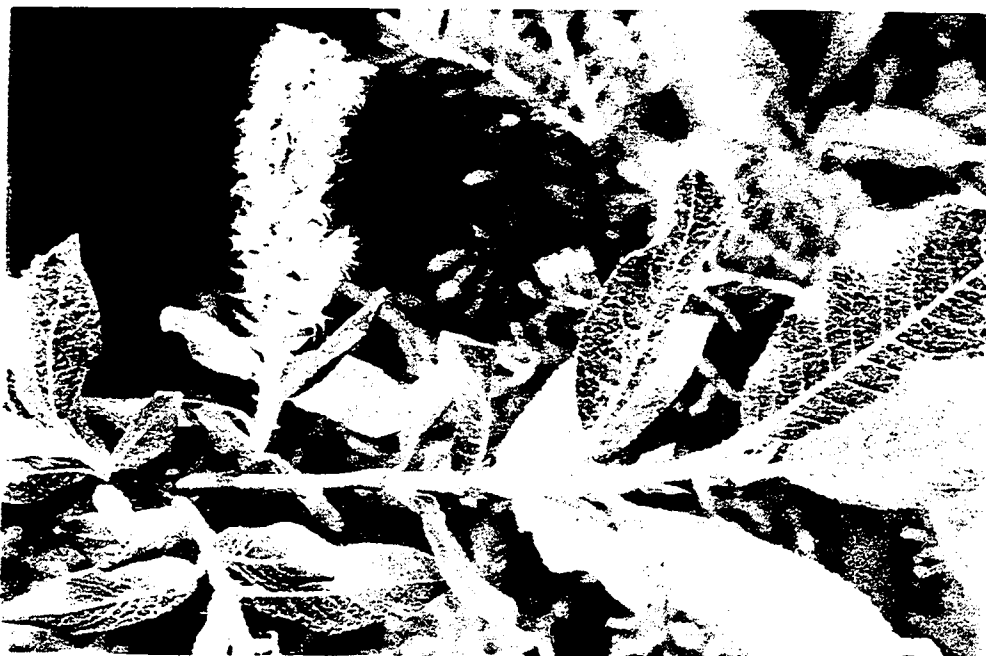
Palatability: Moderate palatability to livestock, big game and beavers.

Fire sensitivity: Mode - Seed germination, basal stem sprouting.

Regeneration Period - Moderate.

Resistance - Sensitive, but resprouts.

Cultural Significance: Indians used the flexible willow stems for many kinds of implements such as baskets, arrow shafts, scoops and fish traps. Willows provide medicine for many ailments such as cuts, indigestion, worms and stomach complaints.



Undergreen Willow

Salix commutata

SAC02

Description: Many-stemmed shrub to 9 feet (2.7 meters) tall on well-drained sites but less than 3 feet (0.9 meters) tall on boggy sites; twigs of season glabrous to moderately pubescent with fine loosely appressed hairs, glabrous by the second year.

Leaves: Blades broadly elliptic to obovate, 5-8 cm long and 1.7-3.5 cm wide, firm and thick, green on both sides, somewhat paler below but not glaucous, loosely fine-tomentose (especially above) less so with age.

Flowers: Pistillate aments 3-5 mm long; floral branchlets leafy, up to 4 cm long; floral bracts brown to black, with long tangled hairs.

Fruit: Glabrous capsules.



Drummond Willow

Salix drummondiana

SADR

Range: Alberta and British Columbia, south to the Sierra Nevada, Nevada, Utah and New Mexico, east across southern Canada and northern United States to the Atlantic; observed at scattered locations on the east half of the Fremont National Forest.

Indicator Value: Streambanks and shrub meadows; moderate elevations in the mountains.

Palatability: Highly palatable to livestock, big game and beavers.

Fire sensitivity: Mode - Seed germination, basal stem sprouting.

Regeneration Period - Moderate.

Resistance - Susceptible, but resprouts.

Cultural Significance: Indians used the flexible willow stems for many kinds of implements such as baskets, arrow shafts, scoops and fish traps. Willows provide medicine for many ailments such as cuts, indigestion, worms and stomach complaints.



Drummond Willow

Salix drummondiana

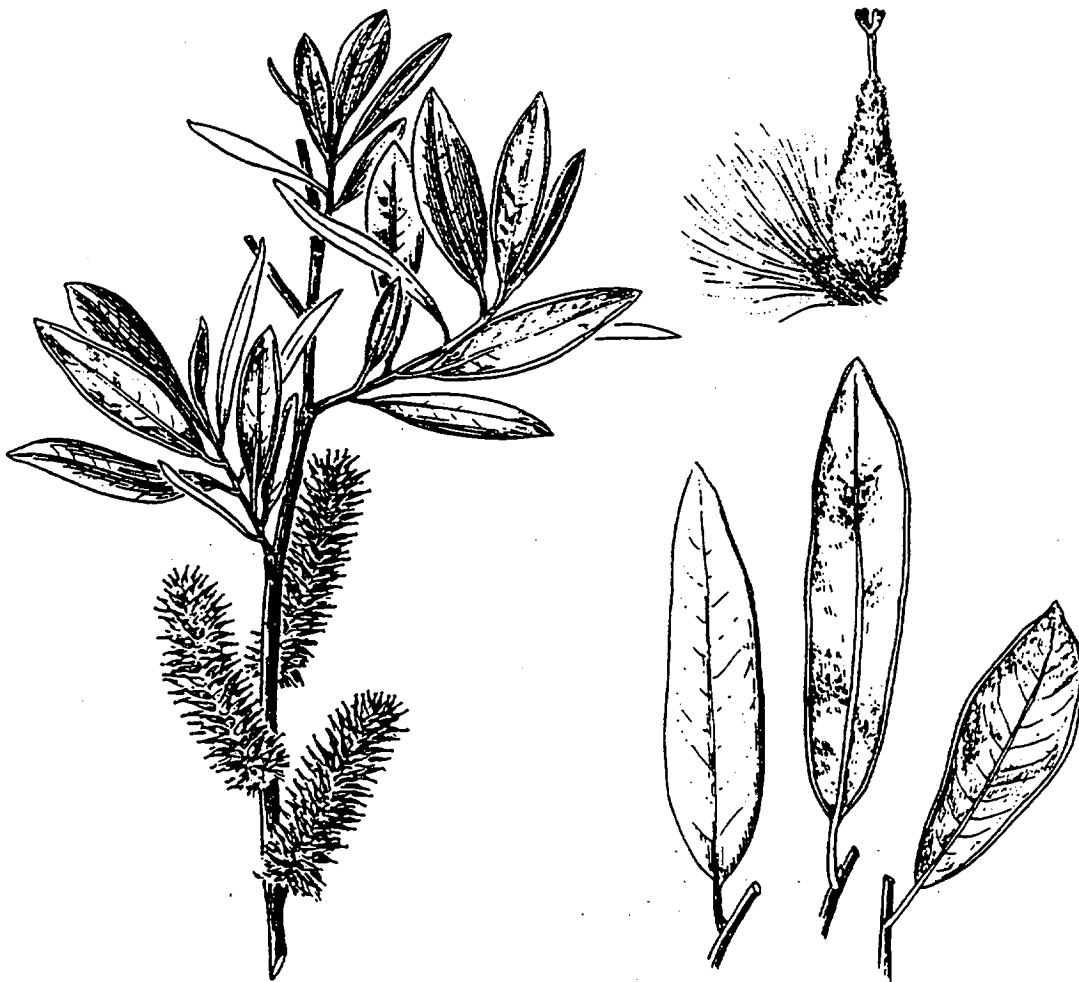
SADR

Description: Many-stemmed shrub 6-9 feet (1.8-2.7 meters) tall; twigs glaucous for 1 or 2 years; twigs of season green to purple, sparsely pubescence.

Leaves: Broadly elliptic to lanceolate, 2.2-8 cm long by 13-20 mm wide, dark green and glabrous above, silvery white pubescent and glaucous below, margins often revolute.

Flowers: Staminate ament 2-3 cm long, pistillate aments 2-4.5 cm long; floral bracts brown to black, long-hairy.

Fruit: Capsules densely short-hairy, densely arranged on the rachis.



Eastwood Willow

Salix eastwoodiae

SAEA

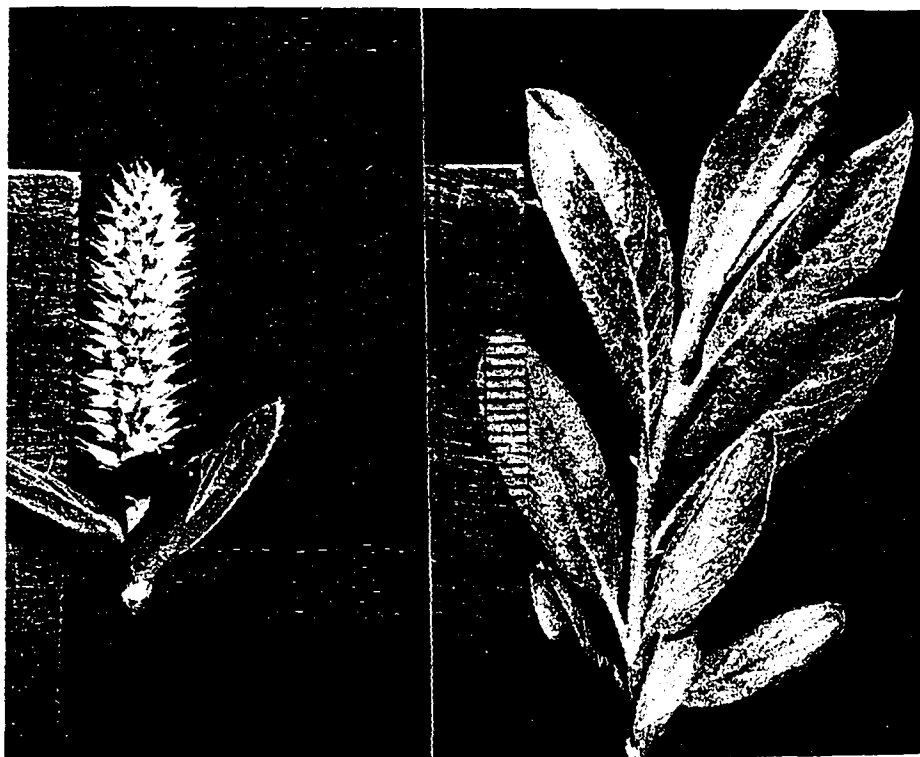
Range: The Cascades of Oregon and adjacent California, east to Nevada, Idaho, Wyoming and southwestern Montana; widespread on Deschutes and Winema National Forests, uncommon eastward.

Indicator Value: Moist to wet meadows and swamps at moderate to high elevations; especially abundant as a dwarf form in bogs.

Palatability: May be somewhat less palatable than other willows.

Fire sensitivity: Mode - Seed germination, basal stem sprouting.
Regeneration Period - Moderate.
Resistance - Susceptible, but resprouts.

Cultural Significance: Indians used the flexible willow stems for kinds of implements such as baskets, arrow shafts, scoops and fish traps. Willows provide medicine for many ailments such as cuts, indigestion, worms and stomach complaints.



Eastwood Willow

Salix eastwoodiae

SAEA

Description: Erect, branching shrubs 6-9 feet (1.8-2.7 meters) tall on well-drained sites but dwarfed (1-2 feet tall) in bogs; twigs dark to olive, sparsely to densely pubescent with wavy hairs for 2-3 years.

Leaves: Elliptic to oblanceolate, green to silver-gray, 2-6 cm long, 1.7-3.5 cm wide; long woolly villous when young, becoming less so with age; margins prominently glandular at least when young.

Flowers: Pistillate aments 1-5 cm long; floral branchlets 8-15 mm long, strongly leafy; floral bracts brown to black, long silky hairy.

Fruit: Pubescent capsule (rarely glabrate).



Coyote Willow

Salix exigua spp. *exigua*

SAEXE

Range: East of the Cascade and Sierra Nevada crests and west of the Rocky Mountains; all of central Oregon.

Indicator Value: Streambanks, ditches and gravel bars; low elevations, generally only in the foothills of Forests in central Oregon.

Palatability: Highly palatable to livestock, big game and beavers.

Fire sensitivity: Mode - Seed germination, basal stem sprouts, root sprouts.

Regeneration Period - Moderately fast.

Resistance - Sensitive, but resprouts.

Cultural Significance: Indians used flexible willow stems for many kinds of implements such as baskets, arrow shafts, scoops and fish traps. Willows provide medicine for many ailments such as cuts, indigestion, worms and stomach complaints.



Coyote Willow

Salix exigua spp. *exigua*

SAEXE

Description: Colonial, spreading shrub 15-25 feet (4.6-7.6 meters) tall; twigs of season thinly to densely pubescent with straight appressed hairs, glabrous and brownish in second year.

Leaves: Blades narrowly lance-linear, gray-green or silvery with dense white hairs (rarely glabrate), glaucous beneath, entire or few-toothed.

Flowers: Staminate aments 1.5-4.5 cm long, pistillate aments 1.5-6 cm long; floral branchlets 1-20 cm long, very leafy; floral bracts yellow, villous, deciduous.

Fruit: Sessile, hairy capsules.



Geyer Willow

Salix geyeriana var. *geyeriana*
Salix geyeriana var. *meleiana*

SAGEG
SAGEM

Range: Var. *geyeriana* mainly east of the Cascades from southern British Columbia to northern California, east to the Rocky mountains; var. *meleiana* in the vicinity of Cascades and westward; all of central Oregon.

Indicator Value: Moist to wet meadows, marshes and streambanks; widespread, the most abundant willow in central Oregon; low to moderate elevations.

Palatability: Moderately high palatability for livestock, big game and beaver.

Fire sensitivity: Mode - Seed germination, basal stem sprouting.
Regeneration Period - Moderate.
Resistance - Sensitive, but resprouts.

Cultural Significance: Indians used flexible willow stems for many kinds of implements such as baskets, arrow shafts, scoops and fish traps. Willows provide medicine for many ailments such as cuts, indigestion, worms and stomach complaints.



Geyer Willow

Salix geyeriana var. *geyeriana*
Salix geyeriana var. *meliana*

SAGEG
SAGEM

Description: Many-stemmed shrubs to 15 feet (4.6 meters) tall; young twigs densely pubescent, becoming strongly glaucous; older twigs glabrate; var. *meliana* twigs slightly or not at all glaucous.

Leaves: Narrowly elliptical, entire, 2-4.5 cm long, 8-12 mm wide, glaucous beneath, densely appressed-hairy on both surfaces when unfolding, becoming sparsely to moderately hairy at maturity; var. *meliana* less pubescent, pubescence somewhat rusty in color.

Flowers: Borne on short aments, staminate aments 7-15 mm long, pistillate aments 1-2 cm long; floral branchlets up to 1 cm long, leafy; floral bracts yellow to light brown, short-hairy.

Fruit: Capsules with short hairs.



Whiplash Willow Pacific Willow

Salix lasiandra var. *caudata*
Salix lasiandra var. *lasiandra*

SALAC
SALAL

Range: Var. *caudata* from Saskatchewan to British Columbia, south to California, New Mexico and Colorado; var. *caudata* east of the Cascades in Washington and Oregon; var. *lasiandra* in the vicinity of Cascades and westward but scattered eastward.

Indicator Value: Along streams, occasionally in moist to wet meadows; low to moderate elevations.

Palatability: Moderately high palatability to livestock, big game and beaver.

Fire sensitivity: Mode - Seed germination, basal stem sprouting.
Regeneration Period - Moderate.
Resistance - Sensitive, but resprouts.

Cultural Significance: Indians used the flexible willow stems for many kinds of implements such as baskets, arrow shafts, scoops and fish traps. Willows provide medicine for many ailments such as cuts, indigestion, worms and stomach complaints.



Whiplash Willow Pacific Willow

Salix lasiandra var. *caudata*
Salix lasiandra var. *lasiandra*

SALAC
SALAL

Description: Coarse, several-stemmed shrub to 18 feet (5.5 meters) tall or small trees to 30 feet (9.1 meters) tall; twigs of season pubescent, lustrous, red to olive.

Leaves: Lanceolate, long-acuminate, green above and below, 5-11 cm long, 1-2 cm wide, fine-serrate; petioles often bearing 2 or more wartlike glands at the base of the blade; var. *lasiandra* glaucous beneath.

Flowers: Borne on stout, long aments, staminate aments 2-4.5 cm long and 3-12 mm wide, pistillate aments 2-7 cm long and 11-18 mm wide; floral branchlets 10-35 mm long, large-leaved; floral bracts yellow, pubescent.

Fruit: Glabrous capsules.



Lemmon Willow

Salix lemmonii

SALE

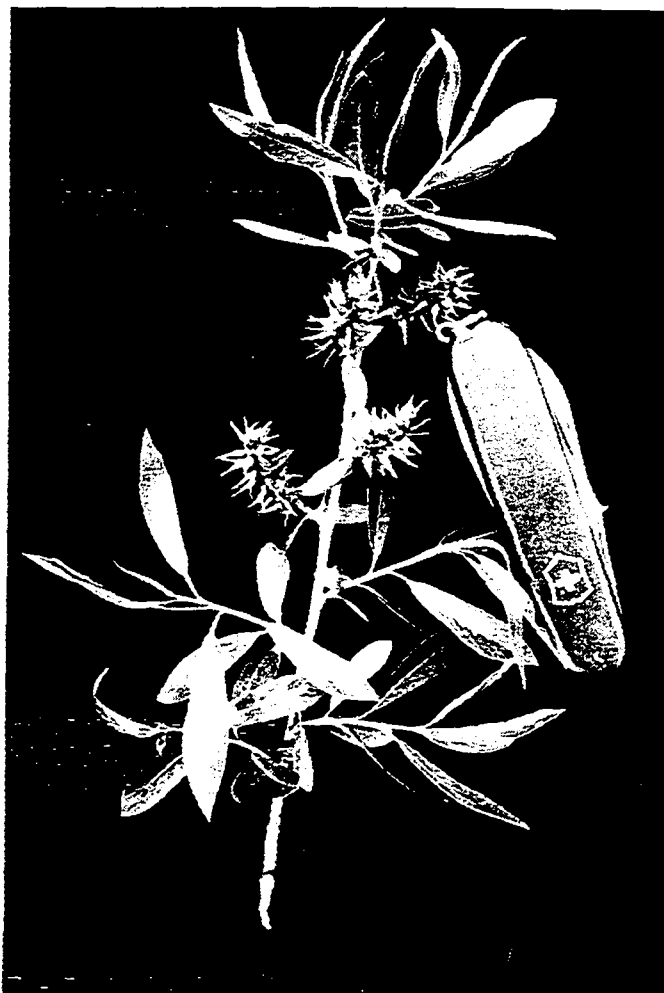
Range: East slopes of the Cascades from Hood River south to the Sierra-Cascade region of California, east to western Idaho and Nevada; all of central Oregon.

Indicator Value: Open meadows and along streams and rivers; low to moderately high elevations.

Palatability: Moderately high palatability to livestock, big game and beavers.

Fire sensitivity: Mode - Seed germination, basal stem sprouting.
Regeneration Period - Moderate.
Resistance - Sensitive, but resprouts.

Cultural Significance: Indians used flexible willow stems for many kinds of implements such as baskets, arrow shafts, scoops and fish traps. Willows provide medicine for many ailments such as cuts, indigestion and stomach complaints.



Lemmon Willow

Salix lemmonii

SALE

Description: Many-stemmed shrubs to 16 feet (4.8 meters) tall; twigs of season glabrous or sparsely pubescent, becoming strongly glaucous; older twigs glabrous, glaucous at least into the second year.

Leaves: Narrowly lance-elliptic, green and glabrate above, pale glaucous and glabrate to sparsely red-hairy below, entire.

Flowers: Pistillate aments 1.5-2.5 cm long; leafy floral branches up to 1 cm long; floral bracts brown to black, sparsely to moderately hairy.

Fruit: Capsules with sparse short hairs.



Yellow Willow complex

Salix lutea complex

SALU

General: A complex grouping of several species that needs further study to clarify the taxonomy. Includes species previously identified as *S. lutea* vars. *platyphylla* and *watsonii*; *S. monochroma*; *S. rigida* vars. *watsonii*, *mackenzieana* and *monochroma*.

Range: Washington and Alberta to Manitoba south to California and east to Colorado and Nebraska; all of central Oregon.

Indicator Value: Streambanks and ditches; generally more abundant at lower elevations within the sagebrush/bunchgrass zone, extending to moderate elevations in association with mountain alder.

Palatability: Moderate high palatability to livestock, deer, elk and beavers.

Fire sensitivity: Mode - Seed germination, basal stem sprouting.
Regeneration Period - Moderate.
Resistance - Sensitive, but resprouts.

Cultural Significance: Indians used flexible willow stems for many kinds of implements such as baskets, arrow shafts, scoops and fish traps. Willows provide medicine for many ailments such as cuts, indigestion, worms and stomach complaints.



Yellow Willow complex

Salix lutea complex

SALU

Description: Rounded shrubs to 18 feet (5.5 meters) tall, occasionally a several-stemmed tree with trunks up to 1 foot (0.3 meters) thick; twigs variable, from yellow to reddish-brown or silvery-gray.

Leaves: Variable, lanceolate or elliptical, with a round to cordate base and varying from not glaucous to very glaucous beneath, 2-5.5 cm long, 9-21 mm wide.

Flowers: Borne on long aments, staminate aments 2-5 cm long and about 1 cm wide, pistillate aments 2-7 cm long and to 2 cm wide; leafy floral branchlets; floral bracts brownish, minute, glabrous.

Fruit: Glabrous capsule.



Scouler Willow

Salix scouleriana

SASC

Range: Alaska to Manitoba, south to California and New Mexico; all of central Oregon.

Indicator Value: Moist woods, clearings, streambanks and shores; primarily an upland species.

Palatability: Moderate palatability to livestock, big game and beaver.

Fire sensitivity: Mode - Seed germination, basal stem sprouting.

Regeneration Period - Moderate.

Resistance - Sensitive.

Cultural Significance: Indians used the flexible willow stems for many kinds of implements such as baskets, arrow shafts, scoops and fish traps. Willows provide medicine for many ailments such as cuts, indigestion, worms and stomach complaints.



Scouler Willow

Salix scouleriana

SASC

Description: Shrubs or small trees 15-30 feet (4.6-9.1 meters) tall; twigs of season with short, straight, appressed hairs; stripped bark with a skunky odor.

Leaves: Broadly oblanceolate or obovate, broadest towards the abruptly tapered tip, green, glabrate except for midrib above but glaucous and with sparse red-tinged hairs beneath.

Flowers: Aments expanding well before the leaves and soon deciduous (therefore rarely seen), pistillate aments 1.5-6 cm long; floral branchlets sessile or less than 1 cm long and leaflets less than 5 mm long; floral bracts dark brown to black, silky hairy.

Fruit: Densely short-haired capsule with a somewhat long beak.



Sitka Willow

Salix sitchensis

SASI2

Range: Coastal southern Alaska to California, mainly in and west of the Cascades, but also in northeast Oregon, eastern Washington and north Idaho; scattered portions of the Cascades in central Oregon.

Indicator Value: Marshes, streambanks and boggy places; moderate to moderately high elevations.

Palatability: Highly palatable to livestock, big game and beavers.

Fire sensitivity: Mode - Seed gemination, basal stem sprouting.

Regeneration Period - Moderate.

Resistance - Sensitive, but resprouts.

Cultural Significance: Indians used the flexible willow stems for many kinds of implements such as baskets, arrow shafts, scoops and fish traps. Willows provide medicine for many ailments such as cuts, indigestion, worms and stomach complaints.



Sitka Willow

Salix sitchensis

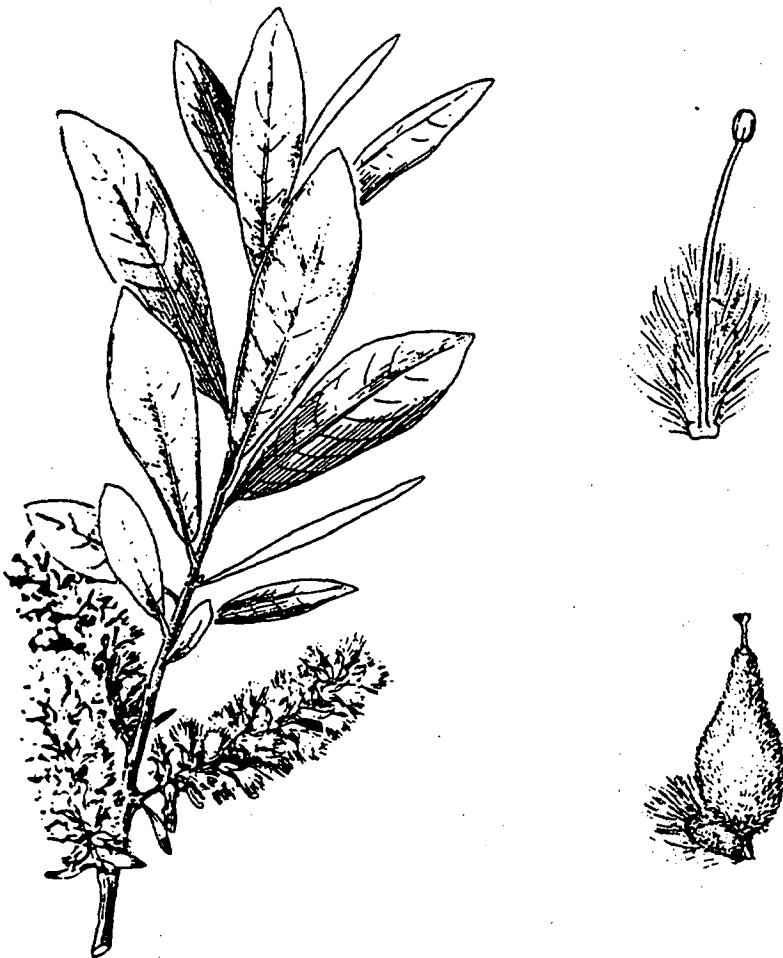
SASI2

Description: Many-stemmed shrub to 15 feet (4.6 meters) tall; twigs dark, densely velvety.

Leaves: Blades obovate, widest towards the tip, dark green and glabrate above, dense velvety-white pubescence beneath.

Flowers: Borne on aments, the pistillate aments 3-8 cm long; leafy floral branchlets about 1 cm long; floral bracts brown to black, hairy.

Fruit: Capsules covered with dense short hairs.



Douglas Spiraea

Spiraea douglasii

SPDO

Range: Alaska, southward to northern California, east to Idaho and northeast Oregon; abundant on the Deschutes and Winema but scattered on the Ochoco and Fremont National Forests.

Indicator Value: Moist valleys to rather wet bottomlands with lodgepole pine, Engelmann spruce, aspen, alder and willows; low to moderately high elevations.

Palatability: Low palatability, sensitive to trampling.

Fire sensitivity: Mode - Basal stem sprouts and rhizomes, seed germination.

Regeneration Period - Moderate to slow.

Resistance - Moderate.

Cultural Significance: Flowers and leaves steeped for tea; roots boiled for diarrhea and venereal disease.



Douglas Spiraea

Spiraea douglasii

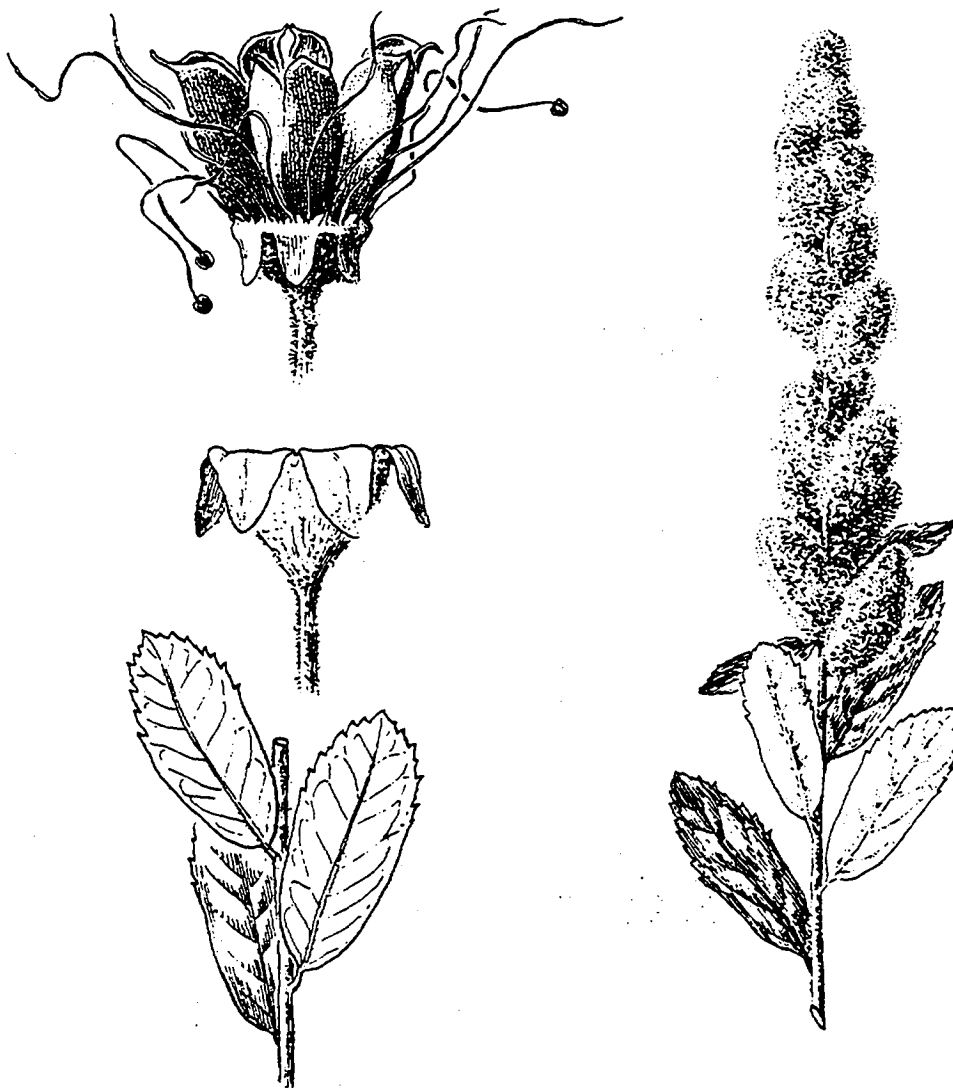
SPDO

Description: Erect clustered stems to 4 feet (1.2 meters) in height; reddish bark; stems straight and slender, pubescent throughout.

Leaves: Alternate, smooth above to slightly hairy below, rounded base with a toothed (serrate) margin above the middle, deciduous.

Flowers: Minute, pink to rose-colored flowers borne in a dense, slender, erect cluster (corymb).

Fruit: Several seeded dry fruit.



Pyramid Spiraea

Spiraea pyramidata

SPPY

Range: East side of the Cascade Mountains from southern British Columbia to southern Oregon; Deschutes and Winema National Forests.

Indicator Value: Moist valleys and dry canyon slopes (talus); low to moderate elevation.

Palatability: Low palatability, sensitive to trampling.

Fire sensitivity: Mode - Basal stem sprouts and rhizomes, seed germination.

Regeneration Period - Moderate to slow.

Resistance - Moderate.

Cultural Significance: Flowers and leaves steeped for tea; roots boiled for diarrhea and venereal disease.



Pyramid Spiraea

Spiraea pyramidata

SPPY

Description: Rhizomatous erect shrub to 3 feet (0.9 meters) in height, pubescent throughout.

Leaves: Ovate-oblong, 2-7 cm long, crisp puberulent at least below, serrate chiefly above the middle.

Flowers: Borne on large, conic heads that are 5-10 cm broad, 1 to 2 times as long; petals white, but pinkish tinged.

Fruit: Several seeded dry fruit.



Common Snowberry

Symphoricarpos albus

SYAL

Range: Alaska, east through much of Canada, south to California, Idaho, and Colorado; throughout central Oregon.

Indicator Value: Well-drained streambanks and floodplains in the riparian zone, also extensive in forested uplands; low to moderate elevations.

Palatability: Moderately low palatability to cattle but very sensitive to the effects of their trampling; moderate palatability to deer and sheep.

Fire sensitivity: Mode - Basal stem sprouts, seed germination.
Regeneration Period - Rapid, slower from seed.
Resistance - Resistant.

Cultural Significance: Berries edible raw or cooked although bland. Leaves contain saponin, a poisonous drug, but were used with the fruits and bark to treat cuts, scabs, burns and as an eye-wash. Tea made from twigs was used as a astringent and to cure fevers and treat coughs. Twigs used for a muddy, golden-tan dye. New growth for arrows.



Common Snowberry

Symphoricarpos albus

SYAL

Description: Erect, slightly rhizomatous shrub to 4 feet (1.2 meters) in height; slender, hollow, smooth, brownish stems.

Leaves: Opposite, deciduous; thin, paler below, varying in shape on the same plant from entire to deeply lobed on new sprouts.

Flowers: Borne in small compact clusters on the ends or sides of the stem; white to pinkish.

Fruit: A white pulpy berry.



Bog Blueberry

Vaccinium occidentale

VAOC2

Range: British Columbia south to Sierra Nevada, east to western Montana and northern Idaho, mostly on the east side of the Cascades; common on the Deschutes and Winema and infrequent on the Ochoco and Fremont National Forests.

Indicator Value: Wet, cold, swampy and boggy places; also under willows, lodgepole pine and Engelmann spruce; moderate to moderately high elevations.

Palatability: Low to moderate palatability for livestock, deer and elk. Bear and birds eat the berries.

Fire sensitivity: Mode - Basal stem sprouts.
Regeneration Period - Moderate.
Resistance - Moderate.

Cultural Significance: Berries edible raw, cooked or made into jam or wine.



Bog Blueberry

Vaccinium occidentale

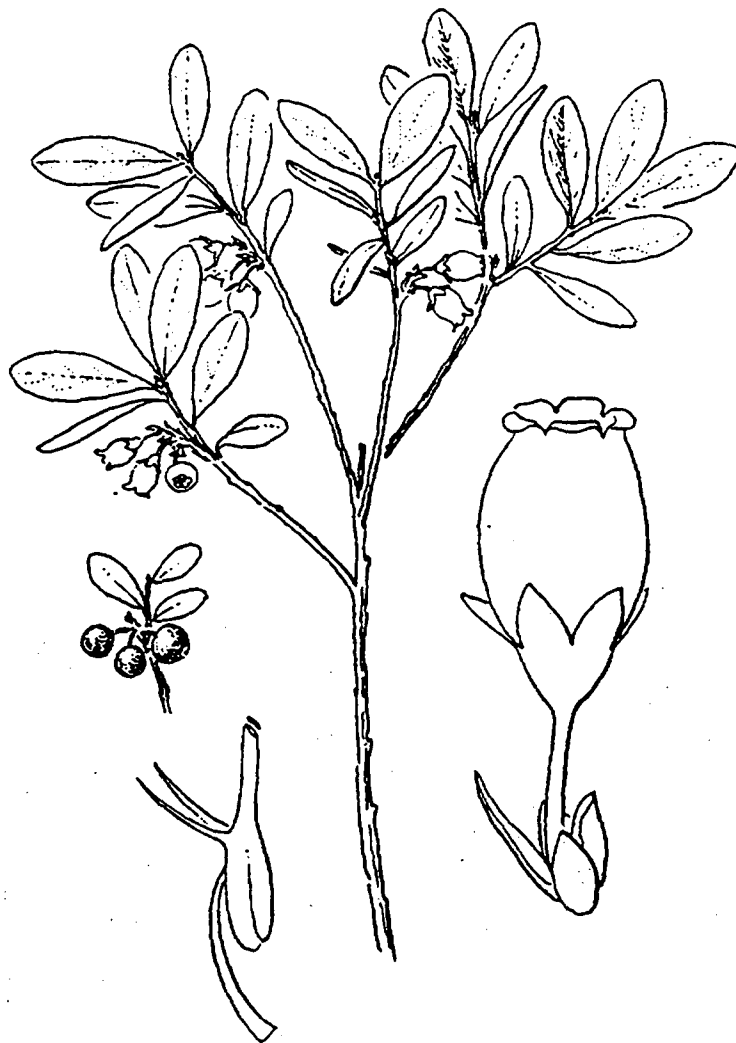
VAOC2

Description: Erect branching shrubs from 2 feet (0.6 meters) in height; stems yellowish-green, glabrous.

Leaves: Alternate, deciduous, entire margins, bluish green from a waxy coating.

Flowers: Urn-shaped, white to pinkish, usually solitary, sometimes in twos.

Fruit: Blue-black berries with a waxy coating, 4-5 mm thick.



Monkshood

Aconitum columbianum

ACCO

Range: Alaska to California, east to southern British Columbia and western Montana, south to Colorado and New Mexico; all of central Oregon.

Indicator Value: Moist woods, meadows and streambanks; moderate to moderately high elevations.

Palatability: Potentially poisonous to livestock, but rarely eaten in fatal quantities.

Fire sensitivity: Mode - Seed germination, rootstock sprouting.
Regeneration Period - Moderate.
Resistant - Moderate.

Cultural Significance: Showy plant transplanted to wetter portions of the garden. All parts of plant poisonous; contains aconite, a heart and nerve sedative.



Monkshood

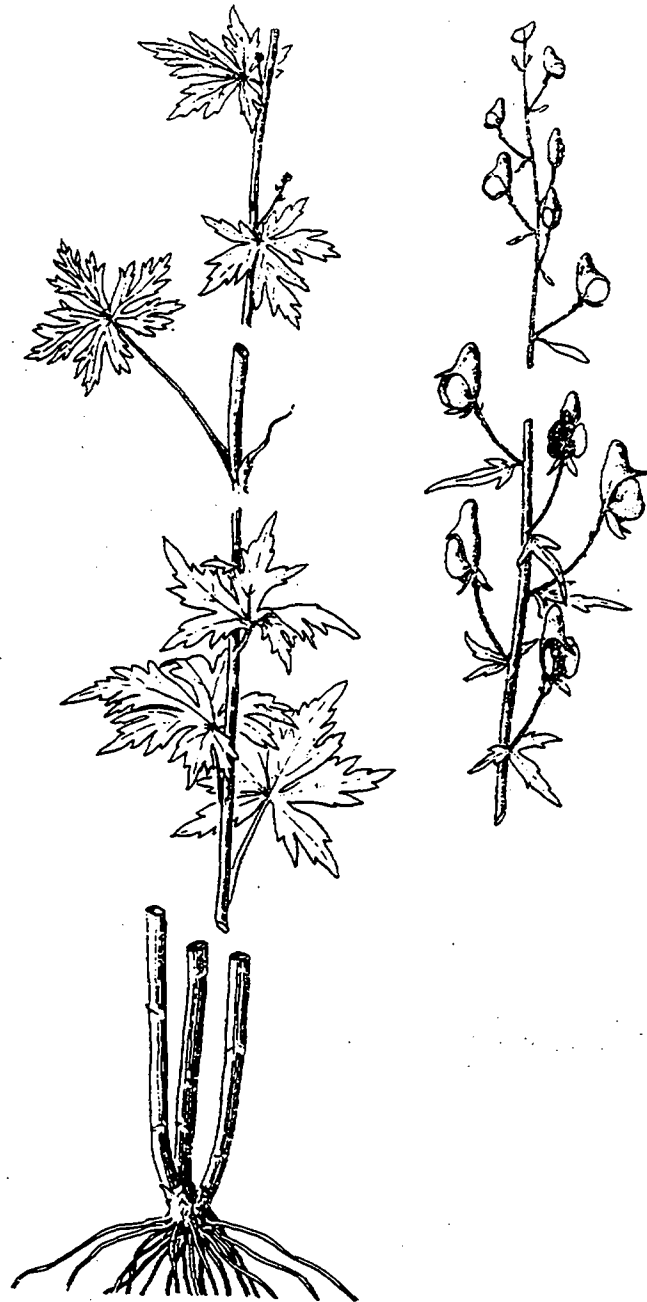
Aconitum columbianum

ACCO

Description: Several erect stems to 6 feet (1.8 meters) tall from a short, thickened, tuberous crown; stems leafy throughout.

Leaves: Deeply five-lobed, 5-20 cm broad, on long petioles below to sessile above, variously toothed.

Flowers: In simple to simply branched racemes; flowers usually deep purplish-blue.



Queencup Beadlily

Clintonia uniflora

CLUN

Range: Widespread from Alaska south to California, from near the coast inland to Alberta, Montana, Idaho and northeast Oregon: Deschutes, Winema and Ochoco National Forests.

Indicator Value: Cool, moist forests in basins, valley bottoms and the margins of meadows and bogs; its presence on forested sites indicates high site productivity for conifers; low to moderately high elevations.

Palatability: Nonpalatable.

Fire sensitivity: Mode - Seed germination, rhizome budding.
Regeneration Period - Moderate.
Resistance - Susceptible to moderate.

Cultural Significance: Juice from plant used for sore eyes; bruised leaves applied to wounds to stop bleeding. Ornamental.



Queencup Beadlily

Clintonia uniflora

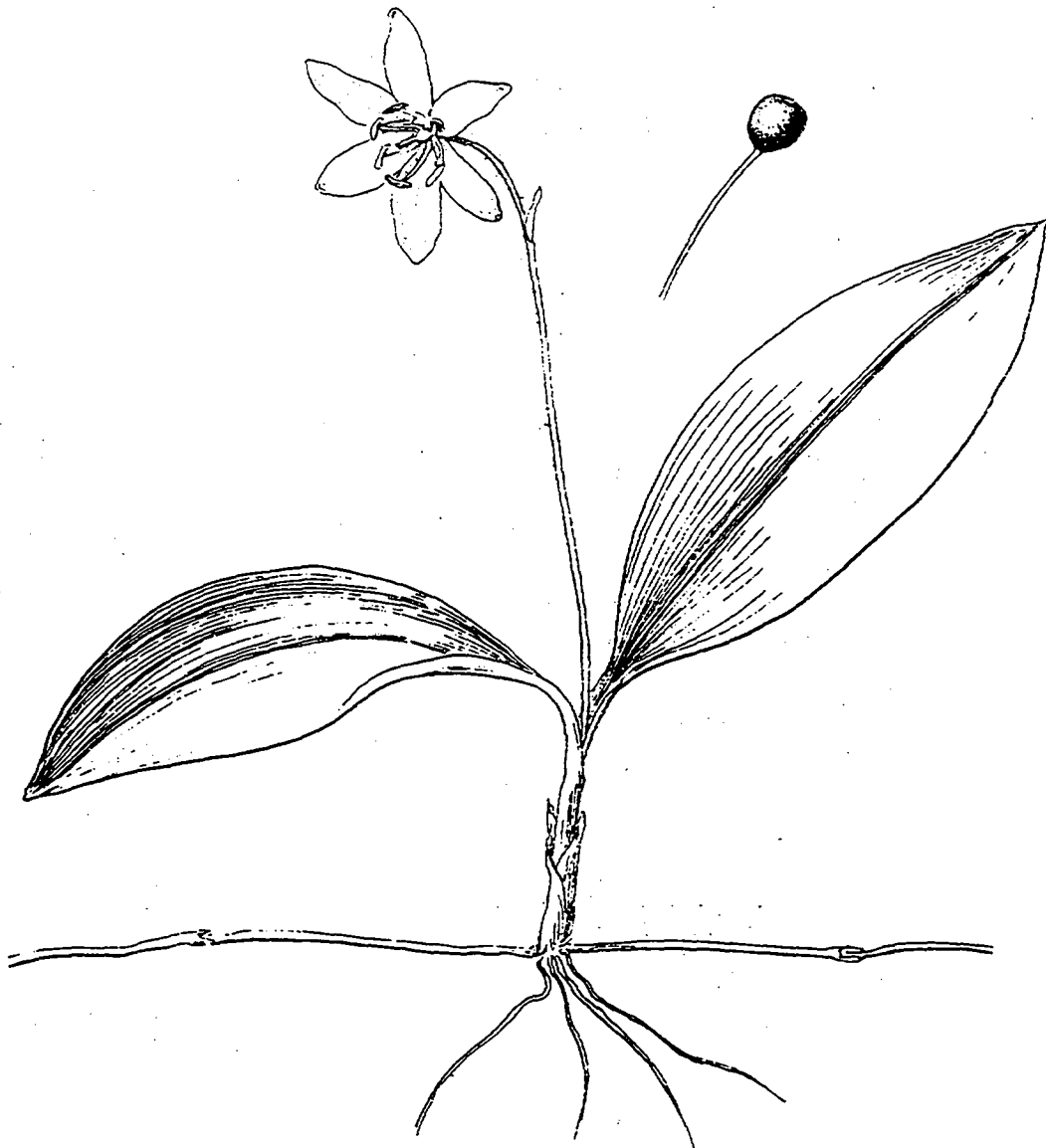
CLUN

Description: Low-growing, rhizomatous, perennial forb to 6 inches (15 cm) tall.

Leaves: Elliptic, usually one pair at base of stem; sparsely soft-hairy, especially on lower surface and along margin, 5-15 cm long.

Flowers: White, showy, often solitary, terminal on a single flowering stalk: 2 cm across.

Fruit: Shiny blue berry with few seeds.



Common Horsetail

Equisetum arvense

EQAR

Range: Throughout western North America; all of central Oregon.

Indicator Value: Bogs, moist to wet meadows, forested wetlands; low to moderate elevations.

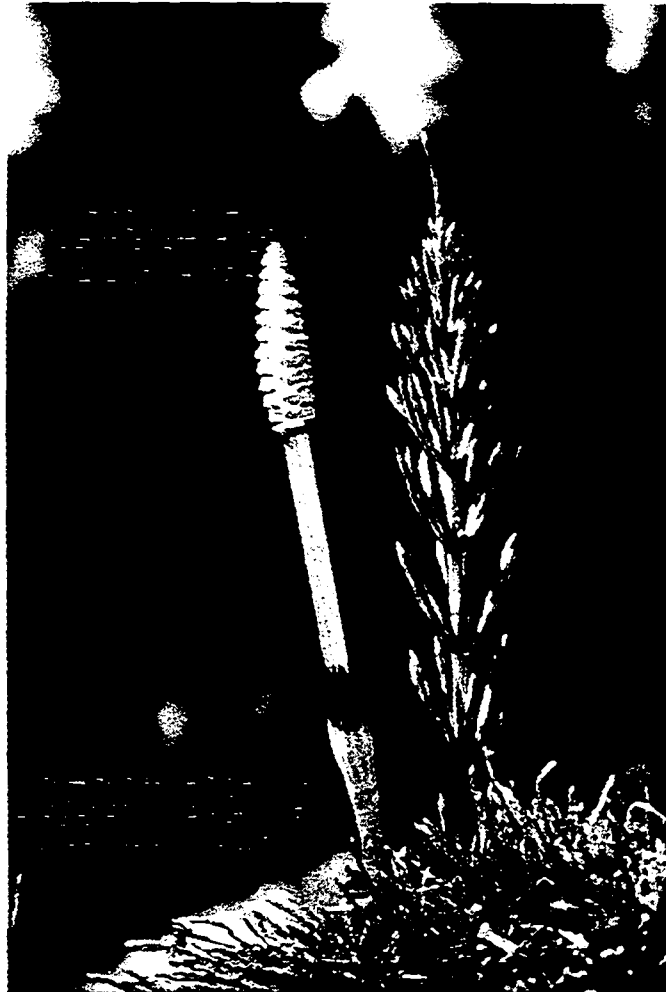
Palatability: Low in palatability to livestock, deer and elk.

Fire sensitivity: Mode - Rhizome extension.

Regeneration Period - Rapid.

Resistance - Very resistant.

Cultural Significance: A tea made from the whole plant was used as a diuretic; an infusion of the stems and leaves was poured down the throat of horses that had developed a hard cough; used as a dye for clothing, robes, lodges and porcupine quills; used for scouring and polishing. Young shoots cooked or eaten raw.



Common Horsetail

Equisetum arvense

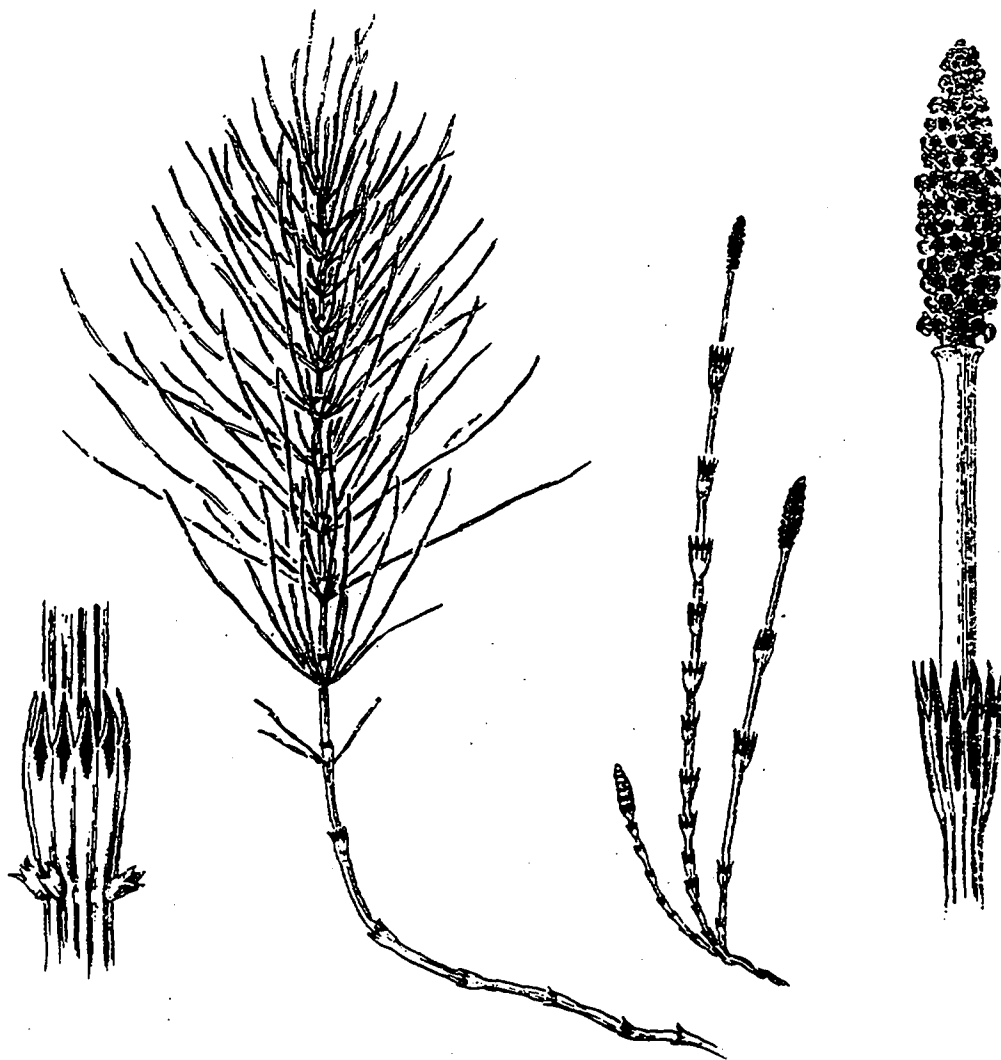
EQAR

Description: Rhizomatous, colonial perennials to 2 feet (0.6 meters) tall; stems annual, the fertile stems simple, soon withering, topped by a cone; the later persistent sterile stems have whorls of branches; stems shallowly 9-25 ridged and grooved.

Leaves: Whorled branches at internodes resemble leaves.

Flower: A terminal, blunt cone to 3.5 cm long, covered with blunt, disk-shaped sporangia.

Fruit: Minute spores.



Sweetscented Bedstraw

Galium triflorum

GATR

Range: Circumboreal, south to California, Mexico and Florida; all of central and south-central Oregon.

Indicator Value: Cool moist forests in basins, valley bottoms and the margins of meadows and bogs; indicates high site productivity for conifers; low to moderately high elevations;

Palatability: Low in palatability for livestock, deer and elk.

Fire sensitivity: Mode - Seed germination and rhizome extension.

Regeneration Period - Moderate.

Resistance - Moderate resistance.

Cultural Significance: Used in bedding.



Sweetscented Bedstraw

Galium triflorum

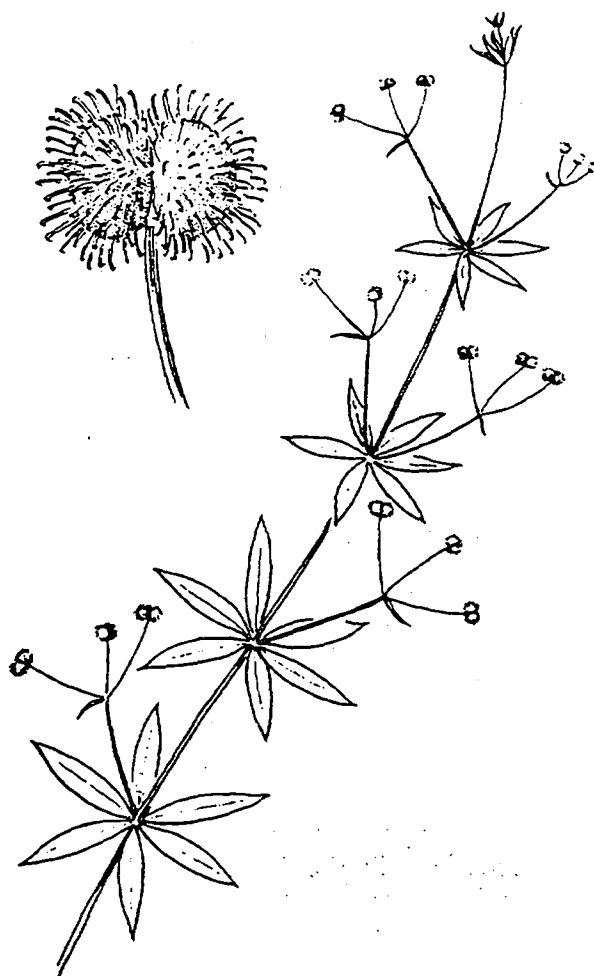
GATR

Description: Prostrate, scrambling, perennial forb from creeping rhizomes; stems hooked scabrous.

Leaves: Narrowly elliptic, mostly 6 in a whorl (4 on smaller branches), scabrous on margins and midrib.

Flowers: Generally 3-flowered on divergent three-branched stalks from the leaf axils; flowers 4-parted, white.

Fruit: A two celled ovary covered with hooked bristles.



Gray Licoriceroot

Ligusticum grayi

LIGR

Range: Cascade Mountains of Washington to the Sierra Nevada of California, east to the Blue Mountains of northeastern Oregon; all of central Oregon.

Indicator Value: A wide variety of sites from moist to drier meadows and streambanks to open or wooded slopes in the mountains; moderate to high elevations.

Palatability: Probably low due to strong oils.

Fire sensitivity: Mode - Seed germination, basal stem sprouts.

Regeneration Period - Moderate.

Resistance - Moderate.

Cultural Significance: None known.



Gray Licoriceroot

Ligusticum grayi

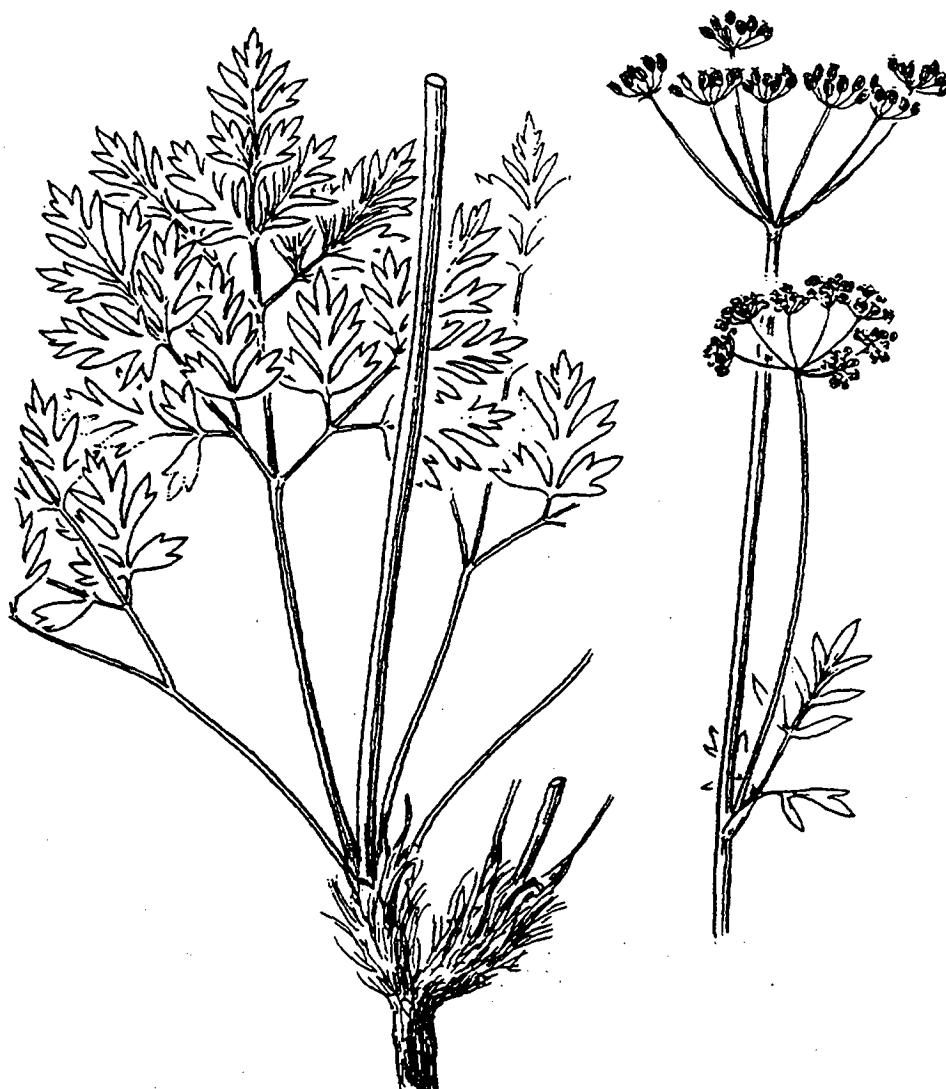
LIGR

Description: Perennial forb to 2 feet (0.6 meters) tall.

Leaves: Mostly basal, several, twice dissected into distinct, toothed leaflets.

Flowers: White, 7 to 14 in several umbels.

Fruit: 4-6 mm long, the ribs narrowly winged.



Elephanthead

Pedicularis groenlandica

PEGR

Range: Across temperate North America, south to California and New Mexico; all of central Oregon although uncommon on the Ochoco National Forest.

Indicator Value: Cold meadows and streambanks, especially typical of bogs and boggy marshes; moderate to high elevations.

Palatability: Low in palatability to livestock, deer and elk.

Fire sensitivity: Mode - Seed germination and rootstock regrowth.

Regeneration Period - Moderate.

Resistance - Moderate except for deeply penetrating peat fires that destroy the roots.

Cultural Significance: A drink was made for coughs by boiling the stem and leaves.



Elephanthead

Pedicularis groenlandica

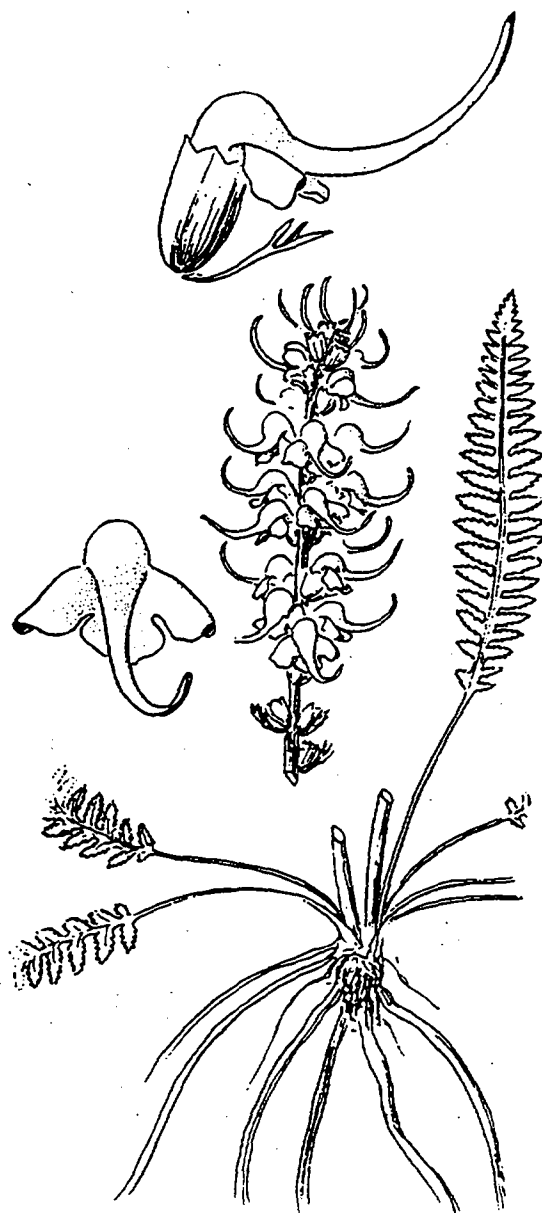
PEGR

Description: Erect, fibrous-rooted perennial up to 1 1/2 feet (0.5 meters) tall; stems clustered.

Leaves: Mostly basal, pinnatifid, 4-7 cm long; the ones on the stem scattered and short.

Flowers: A densely flowered spike, 4-15 cm long; flowers resembling an elephant's head, violet or pink to purple.

Fruit: Glabrous capsule with several seeds.



Bog Saxifrage

Saxifraga oregana

SAOR

Range: West slopes of the Cascades from Washington to the Sierra Nevada, east to the Rocky Mountains; common on the Deschutes and Winema and uncommon on the Ochoco and Fremont National Forests.

Indicator Value: Bogs and open marshy areas; moderate to moderately high elevations.

Palatability: Probably low.

Fire sensitivity: Mode - Seed germination and root regrowth.
Regeneration Period - Moderate.
Resistance - Moderate.

Cultural Significance: Ornamental.



Bog Saxigrage

Saxifraga oregana

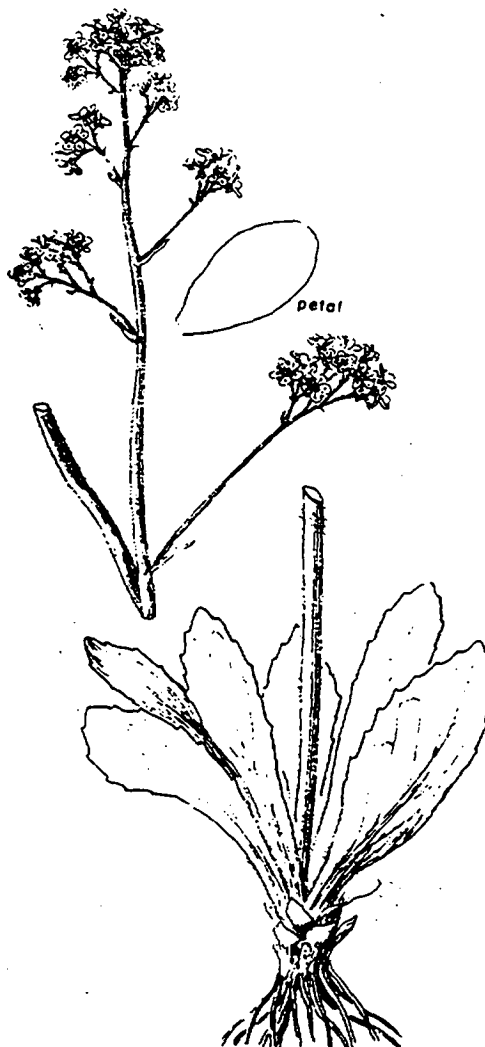
SAOR

Description: Strong perennial to 2 feet (0.6 meters) tall from an erect, simple caudex; flowering stems leafless.

Leaves: Basal, oblanceolate, entire to sinuate-dentate, 10-20 cm long.

Flowers: White to greenish white on an open, elongate, narrow panicle.

Fruit: Brownish seed, prominently wrinkled lengthwise.



Arrowleaf Groundsel

Senecio triangularis

SETR

Range: Alaska to Saskatchewan, south to California and New Mexico; all of central Oregon.

Indicator Value: Mesic streambanks and woods; abundant stands associated with degraded sites; moderate to high elevation.

Palatability: Moderate palatability to livestock, deer and elk.

Fire sensitivity: Mode - Seed germination, root crown resprouts.
Regeneration Period - Moderate.
Resistance - Moderate.

Cultural Significance: Attractive flowers and foliage; may be transplanted to wet portions of the garden where it may become a bad weed.



Arrowleaf Groundsel

Senecio triangularis

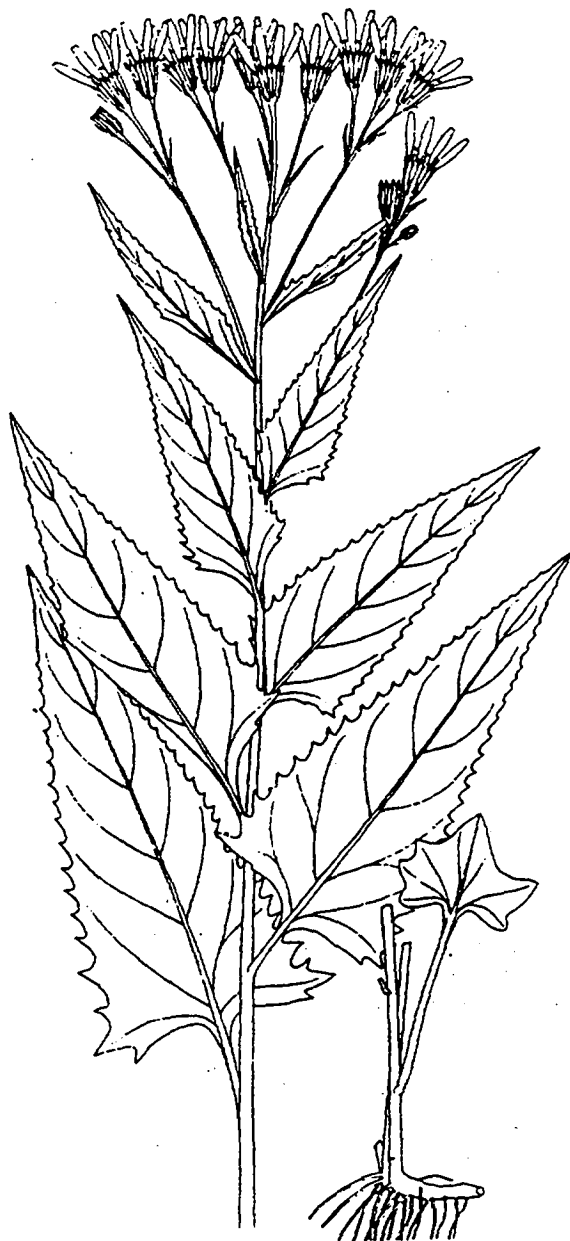
SETR

Description: Stout, several-stemmed, fibrous-rooted perennial herb to 3 feet (0.9 meters) tall; stems equally leafy throughout.

Leaves: Oblong-lanceolate to more normally triangular, typically glabrous, 3-15 cm long, margins dentate.

Flowers: Borne in several to many, subcorymbose heads; yellow, composite, 5-9 ray flowers.

Fruit: Achene crowned with many bristles.



Hooded Ladies-tresses

Spiranthes romanzoffiana

SPRO

Range: Throughout temperate North America and central Oregon.

Indicator Value: Present in many meadow associations but especially typical of boggy sites; moderate to high elevations.

Palatability: Probably low.

Fire sensitivity: Mode - From fleshy clustered roots.

Regeneration period - Rapid.

Resistance - Resistant.

Cultural Significance: None known; most orchids don't transplant well to the garden.



Hooded Ladies-tresses

Spiranthes romanzoffiana

SPRO

Description: Small, simple, perennial forb to 12 inches (30 cm) tall, arising from a fleshy rootstock.

Leaves: several, narrowly oblong, spiralled near the stem base, 8-10 cm long.

Flowers: White to greenish-white, aligned in spiralling vertical rows.

Fruit: Capsule with many small seeds.



Claspleaf Twistedstalk

Streptopus amplexifolius

STAM

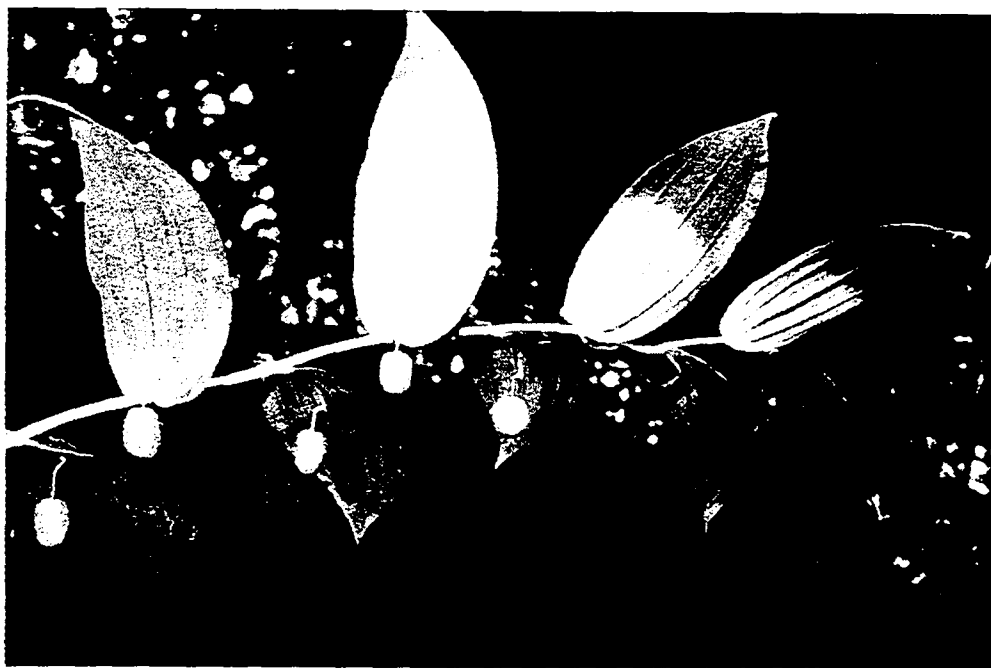
Range: Alaska to California, east through much of Canada and the United States; all of central Oregon.

Indicator Value: Cool moist forests in basins, valley bottoms and the margins of meadows and bogs; its presence on forested sites indicates high productivity for conifers.

Palatability: Moderate palatability to livestock, deer and elk.

Fire sensitivity: Mode - Seed, rhizome resprout.
Regeneration Period - Moderate.
Resistance - Moderate.

Cultural Significance: Young stems eaten raw, roots eaten to induce labor, leaf infusion used to treat tuberculosis.



Claspleaf Twistedstalk

Streptopus amplexifolius

STAM

Description: Freely branching perennial forb to 3 feet (0.9 meters) tall, glabrous throughout.

Leaves: Alternate, ovate to elliptic, 5-12 cm long and $\frac{1}{3}$ to $\frac{1}{2}$ as broad; leaf base completely clasping the stem,

Flowers: Single flowers hanging beneath each leaf on a sharply bent stalk, white but tinged with green.

Fruit: Bright orange berry.



Rosy Twistedstalk

Streptopus roseus

STRO

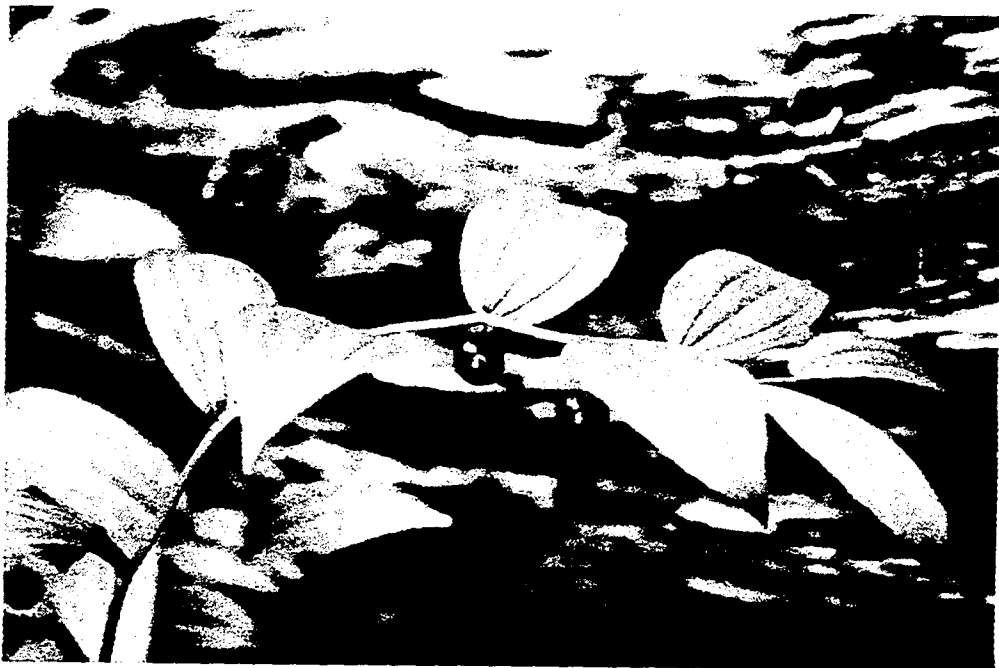
Range: Cascades of Washington and Oregon, Coast Range and Olympics, north to Alaska; Deschutes and Winema National Forests.

Indicator Value: Cool moist forests in basins, valley bottoms and the margins of meadows and bogs; its presence on forested sites indicates high site productivity for conifers.

Palatability: Moderate palatability to livestock, deer and elk.

Fire sensitivity: Mode - Seed, rhizome resprout.
Regeneration period - Moderate.
Resistance - Moderate.

Cultural Significance: Young stems eaten raw, roots eaten to induce labor, leaf infusion used to treat tuberculosis.



Rosy Twistedstalk

Streptopus roseus

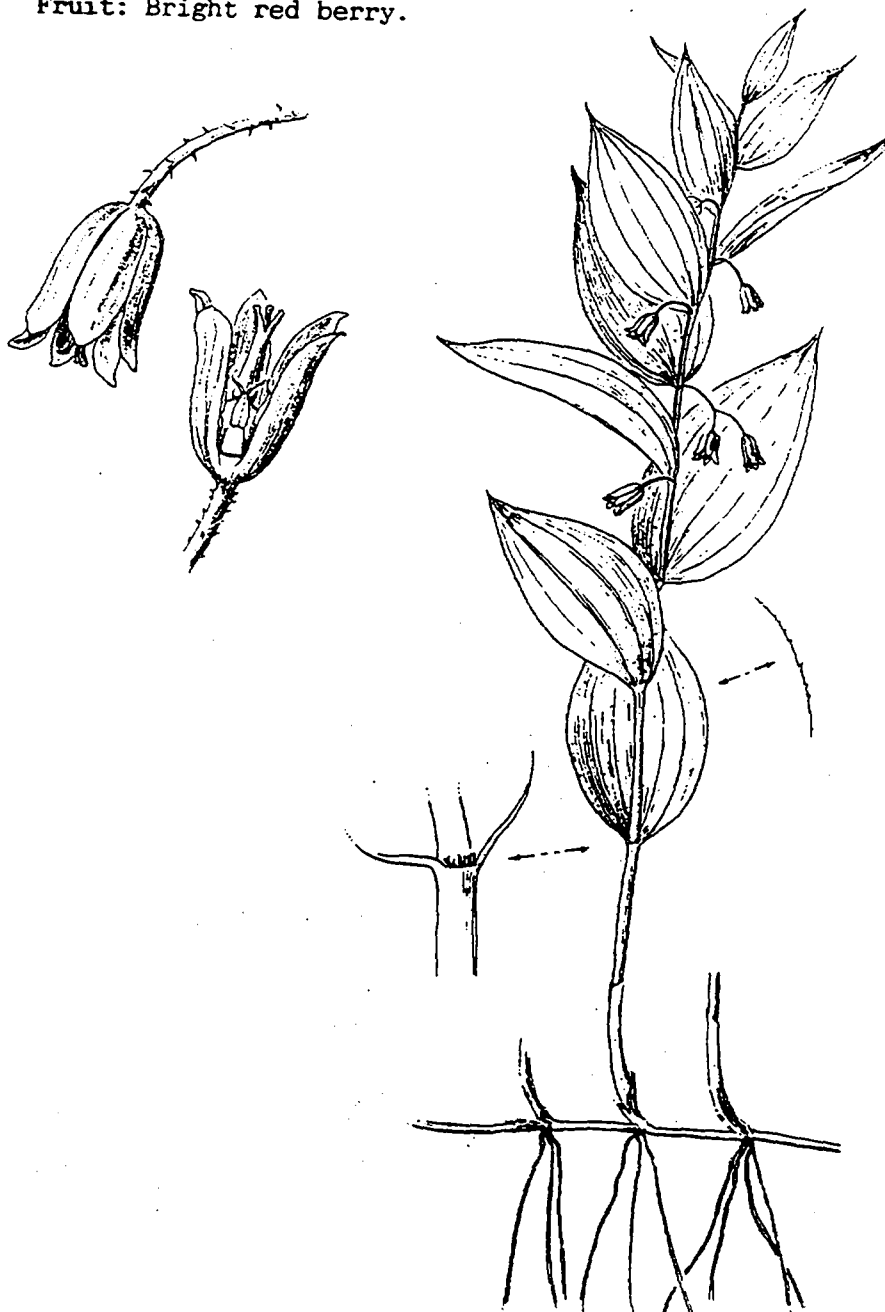
STRO

Description: Low-growing, rhizomatous perennial to 1 foot (0.3 meters) tall with simple, unbranched stems, glabrous throughout.

Leaves: Alternate, ovate to elliptic, 5-9 cm long and 1/3 to 1/2 as broad, leaf base clasps the stem, prominent veins.

Flowers: Single flowers beneath each leaf node on a drooping but not twisted stalk, white to deep red (rarely greenish).

Fruit: Bright red berry.



White Trillium

Trillium ovatum

TROV

Range: Widespread, coast to Cascade Mountains, British Columbia to central California, east to Alberta and south to Colorado; all of central Oregon.

Indicator Value: Cool, moist, productive coniferous forests, valley bottoms and the edges of meadows, bogs and marshes; moderate to moderately high elevations.

Palatability: Moderately palatable to livestock, deer and elk.

Fire sensitivity: Mode - Seed germination, rhizome resprout.

Regeneration Period - Moderate.

Resistance - Moderate.

Cultural Significance: Juice of bulb and solution from soaking root used as a wash for sore eyes, crushed bulb applied to boils, ground rootstalks used as a "love medicine" and to induce labor. Ornamental, cut flowers long-lasting



White Trillium

Trillium ovatum

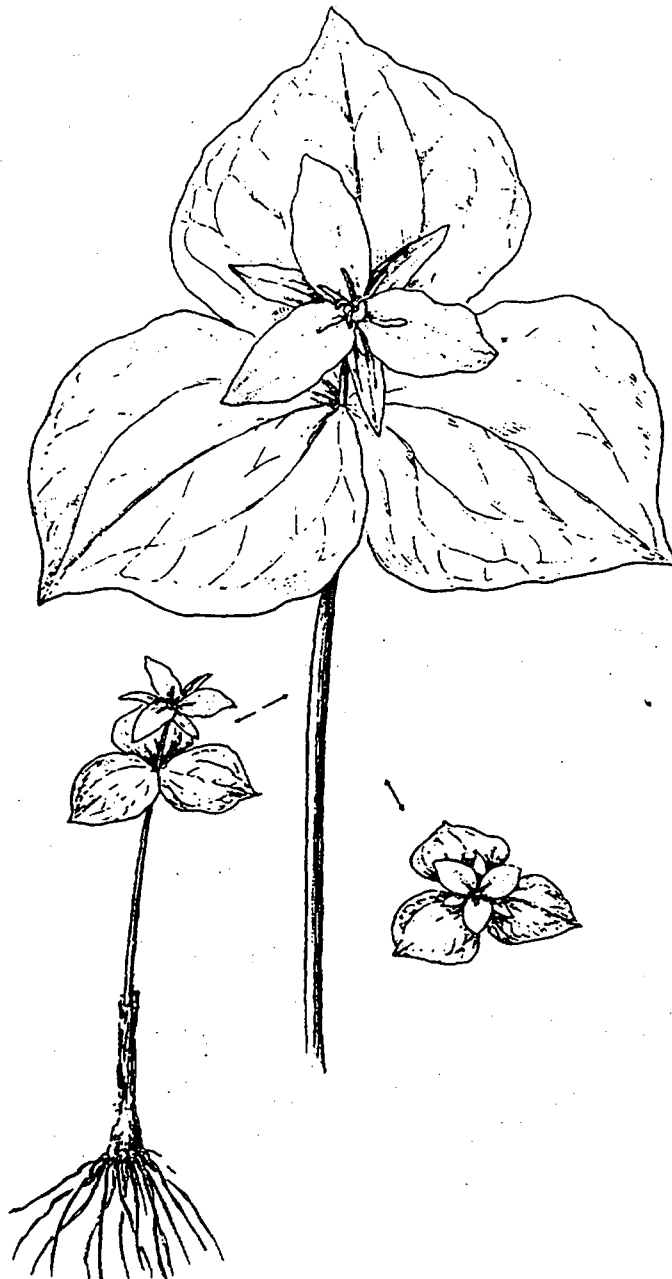
TROV

Description: Short perennial lily with annual stems to 1 foot (0.3 meters) tall from a stout rhizome.

Leaves: Whorl of three large ovate leaves from near the top of the stem, nearly or quite sessile, acute tip, prominently veined.

Flowers: Showy, terminal, solitary, three white petals fading to pink with age.

Fruit: Fleshy three-lobed capsule with many large seeds.



California Falsehellebore

Veratrum californicum

VECA

Range: Western Washington to southern California, east to Montana, Colorado and New Mexico; all of central Oregon.

Indicator Value: Streambanks, meadows and moist woodland; increasing cover of this plant indicates overuse by livestock or other ungulates; low to moderately-high elevation.

Palatability: Shoots and roots poisonous to livestock and big game when consumed in large quantities; less so as plant matures and after frost. Sheep seem able to make considerable use without ill effect.

Fire sensitivity: Mode - Seed germination, rhizome extension.

Regeneration Period - Rapid.

Resistance - Resistant.

Cultural Significance: Powdered roots were sniffed, the resulting sneezing clearing the nasal passages; powder from the dried plant was scattered about the lodge to reduce vermin, powdered plants sold as insecticide; contains alkaloids that slow the heartbeat, fatal in large quantities.



California Falsehellebore

Veratrum californicum

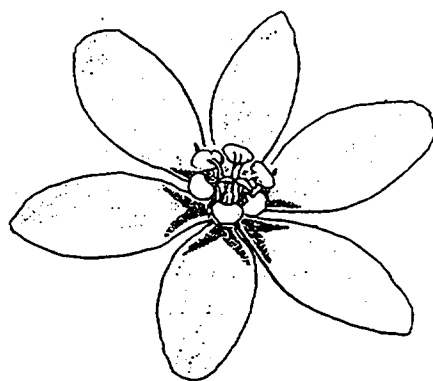
VECA

Description: Erect colonial perennial herbs to 5 or more feet (1.5 meters) in height; growing from thick rhizomes.

Leaves: Numerous, large, broad, coarsely-veined, strongly sheathing at the base, more or less corrugated in appearance.

Flowers: Borne in a dense terminal panicle 3-6 dm long.

Fruit: Capsule with many seeds.



Bluejoint Reedgrass

Calamagrostis canadensis

CACA

General: An extremely variable species with many varieties. No attempt was made to separate the varieties in this study. *C. neglecta* and *C. inexpansa* may be considered site equivalents to *C. canadensis*.

Range: Alaska to Quebec, south to all of the United States except the southeast; all of central Oregon.

Indicator Value: Widespread in the riparian zone on moist meadows, streambanks, basins and under quaking aspen and lodgepole pine; low to moderately high elevations.

Palatability: Moderately palatable to livestock, deer and elk.

Fire sensitivity: Mode - Rootstock regrowth, seed germination.

Regeneration Period - Rapid.

Resistance - Moderate to resistant.



Bluejoint Reedgrass

Calamagrostis canadensis

CACA

Description: Strongly rhizomatous sturdy perennial to 3 feet (0.9 meters) tall.

Leaves: Blades usually flat, 2-6 mm wide, scabrous; sheaths glabrous to scabrous, auricles lacking; ligules 3-7 mm long, lacerate.

Flowers: Borne in a relatively open panicle, 8-17 cm long.

Fruit: A grain.



Tufted Hairgrass

Deschampsia cespitosa

DECE

Range: Alaska to Greenland, south to California, Mexico, Arizona and New Mexico, east to Wisconsin and Michigan; Eurasia; all of central Oregon.

Indicator Value: A wide variety of sites from coastal to alpine; meadows, streambanks and lakeshores; low to high elevations.

Palatability: Moderate or better palatability to livestock, deer and elk.

Fire sensitivity: Mode - Seed germination, root crown resprout.
Regeneration Period - Rapid.
Resistance - Resistant.

Cultural Significance: A valuable forage species that is sensitive to use by livestock.



Tufted Hairgrass

Deschampsia cespitosa

DECE.

Description: Densely tufted perennial with numerous culms to 3 feet (0.9 meters) tall; as short as 1 foot (0.3 meters) tall on alpine sites.

Flowers: Borne in loose, open (sometimes narrow), often nodding panicles 5-20 cm long; spikelets shiny purplish; lemmas with awns 2-5 mm long attached from the lower back.

Leaves: Firm, flat or folded, 1-3 mm wide; ligules 3-7.5 mm long, narrow, acuminate, often lacerate.

Fruit: A grain.



Blue Wildrye

Elymus glaucus

ELGL

Range: Southern Alaska to southern California, east to Michigan, Indiana, Colorado and New Mexico; all of central Oregon.

Indicator Value: Moist to dry floodplains, meadows and under aspen and conifers; enters the edge of ponderosa pine and Douglas-fir uplands; low to moderately high elevations.

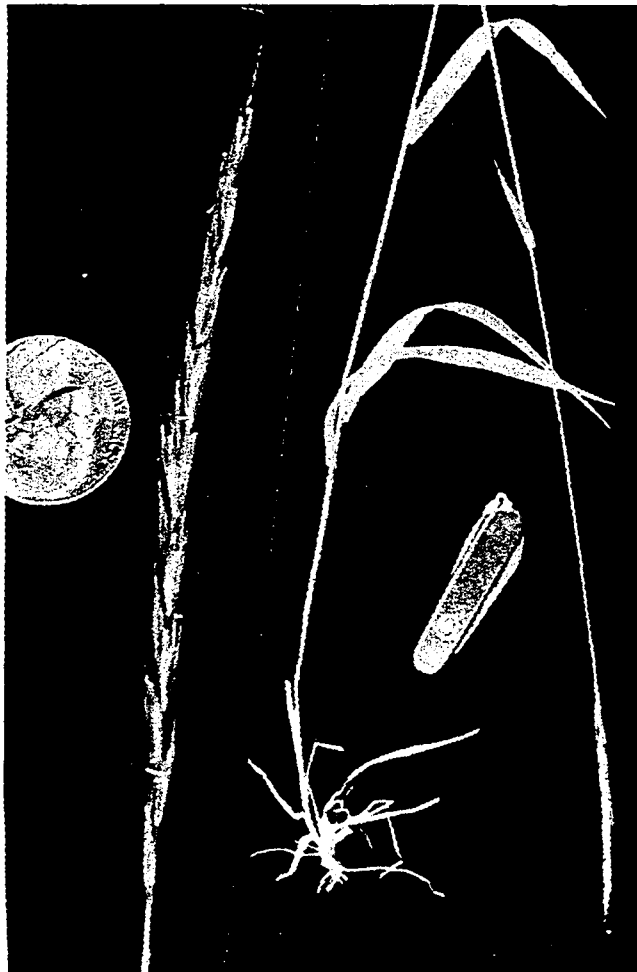
Palatability: Moderate palatability to livestock, deer and elk. Seed used by rodents.

Fire sensitivity: Mode - Rootstock regrowth.

Regeneration Period - Moderate to rapid.

Resistance - Moderate.

Cultural Significance: Grain ground or pounded into flour.



Blue Wildrye

Elymus glaucus

ELGL

Description: Loosely tufted perennial to 3 feet (0.3 meters) tall; stems usually slightly hairy; sheaths short, hairy or smooth, often purple at the collar, auricles well developed; ligule about 1 mm long, with jagged margins, slightly hairy.

Leaves: Flat, thin, smooth or thinly hairy above, 5-10 mm broad.

Flowers: Borne in erect, stiff spikes, 5-15 cm long; spikelets 2 per node and overlapping; lemmas narrowly lanceolate, 10-12 mm long, slender, the straight awn mostly 1-2 cm long.

Fruit: A large grain.



Cusick Bluegrass

Poa cusickii

POCU

Range: British Columbia to Alberta and Saskatchewan, south into California, Colorado, Utah and Nevada; Winema, Fremont and Ochoco National Forests.

Indicator Value: Dry sagebrush floodplains and meadows with pumice soil; low to moderate elevations.

Palatability: Moderately palatable to livestock, deer and elk in early summer; reduced palatability as plants mature in July.

Fire sensitivity: Mode - Seed germination, rootstock regrowth.
Regeneration Period - Moderately rapid.
Resistance - Moderately resistant.

Cultural Significance: None known.



Cusick Bluegrass

Poa cusickii

POCU

Description: Strongly tufted perennial to 1.3 feet (0.4 meters) tall; rarely with short rhizomes; looks like Idaho fescue with bluegrass heads.

Leaves: Basal leaves tending to be involute in central Oregon populations, 0.5-1 mm broad, 10 to 20 cm long, those of the culms few, flat and 1-3.5 mm broad.

Flowers: Compact ovoid panicle, 2-6 cm long and 1-2 cm broad when pressed, greenish to purple-tinged; lemmas keeled, without basal webs in the specimens collected in central Oregon.

Fruit: A grain.



Kentucky Bluegrass

Poa pratensis

POPR

Range: Widespread in most of temperate Canada and all but the southeastern United States; all of central Oregon.

Indicator Value: Introduced from Eurasia; disturbed areas, meadows and open woods where Kentucky bluegrass sometimes has replaced native graminoides; low to moderate elevations.

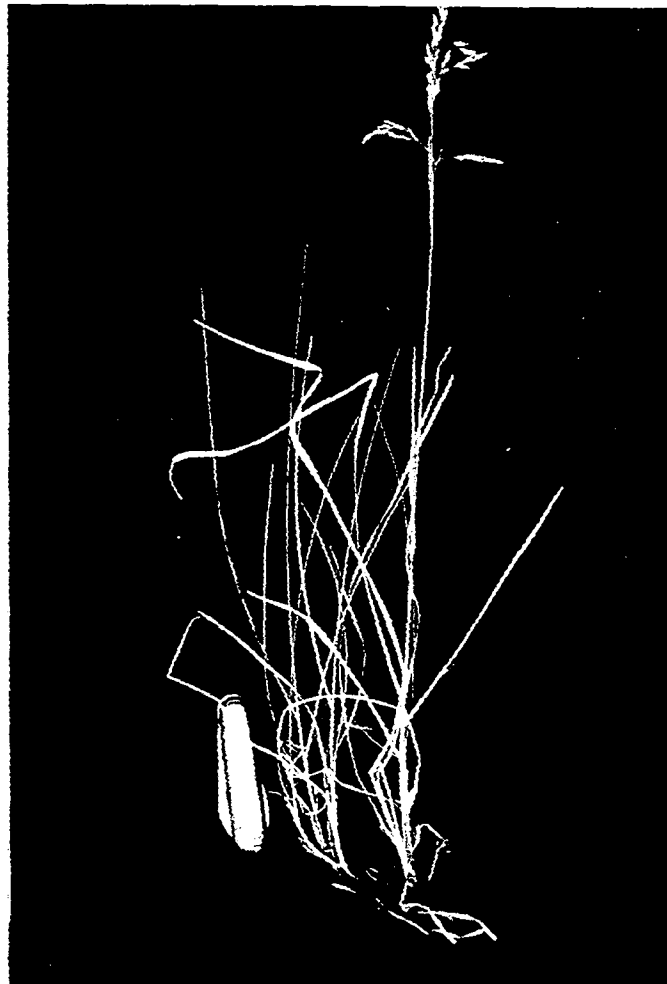
Palatability: Highly palatable to all classes of ungulates.

Fire sensitivity: Mode - Seed germination, basal crown resprouts, rhizome extension.

Regeneration Period - Rapid.

Resistance - Resistant to cool burns, spring burns may lower tiller density.

Cultural Significance: A very important forage species.



Kentucky Bluegrass

Poa pratensis

POPR

Description: Strongly rhizomatous perennial to about 2 feet (0.6 meters) tall; forming a dense sod.

Flowers: Borne in open, often pyramidal panicles; lemmas with dense cobwebby base and hairs on the back (keel) and on the marginal nerves.

Leaves: Green to glaucous, usually folded and with strongly boat-shaped tips; ligules 0.5-1.7 mm long, truncate.

Fruit: A grain.



SEDGE COMPARISONS

Species	Habit	Leaves	Floral Bracts	Spikes	Perigynia	Achene
<i>C. nebraskensis</i> (Nebraska sedge)	coarse, stout, 2-3 feet tall, moist-wet soil, low-mod elev.	bluish-glaucous, firm, flat, mostly basal, sheaths without filaments	leaf-like, lowest bract exceeds the inflorescence	cylindrical, 2-6 cm long, 5-8 mm wide	lens-shaped, 3-4 mm long, nerved face	lens-shaped, stigmas 2
<i>C. nigricans</i> (Black alpine sedge)	loosely tufted to sod-forming, 6-12 in. tall, moist soil, high elev.	firm, flat, crowded near the base, 4-13 cm long, 1.5-3 mm wide	bractless	oblong terminal spikelet, 1-2 cm long, 6-10 mm wide	lanceolate, 3-4.5 mm long, lower ones reflexed at maturity	trigonous, stigmas 3
<i>C. scopulorum</i> (Holm's sedge)	sod-forming, to 1.5 ft. tall, moist-wet soil, higher elev.	firm, flat, mostly basal, 2-6 mm wide, sheaths not filamentous	leaf-like, lowest bract shorter than inflorescence	short, stout, cylindrical, 1-2.5 cm long, 5-10 mm wide	lens-shaped, face nerveless, 1.8-3.3 mm long	lens-shaped, stigmas 2
<i>C. simulata</i> (Short-beaked sedge)	unisexual clones 1-2 ft. tall, boggy marshes & meadows, low to mod-high elev.	flat, elongate, 1-2.5 mm wide, distributed on lower third of stem	scale-like, inconspicuous	compact head, sessile spikes, 1.3-3 cm long	elliptic-ovate, shiny brown, looks like a "tiny almond"	lens-shaped, stigmas 2
<i>C. sitchensis</i> (Sitka sedge)	stout, to 5 ft. tall, wet soil to shallow water, low to mod-high elev.	bluish-glaucous, to 1 cm wide, basal sheaths brownish & not filamentous	leaf-like, lowest bract exceeds the inflorescence	cylindrical, 3-10 cm long, on a long nodding peduncle	lens-shaped, 3-5 mm long, face nerveless	lens-shaped, stigmas 3
<i>C. rostrata</i> (Beaked sedge)	stout, robust, 2-4 feet tall, wet soil to shallow water, low-mod elev.	stout, flat, 4-12 mm wide, well- distributed, scabrous	leaf-like, lowest bract exceeds the inflorescence	cylindrical, 2-10 cm long, 1 cm wide, like a "corn-cob", short peduncle	crowded, inflated, abruptly beaked, 4-7 mm long, strongly spreading, nerved	trigonous stigmas 3
<i>C. vesicaria</i> (Inflated sedge)	loosely tufted, to 3 feet tall, low-mod high elev., wet soil to shallow water	stout, flat, 3-8 mm wide, well- distributed	leaf-like, lowest bract exceeds the inflorescence	cylindrical, 2-7 cm long, about 1 cm wide, short peduncle	ascending, inflated, beak gradually tapering, 5-11 mm long, nerved	trigonous, stigmas 3

SEDGE COMPARISONS

Species	Habit	Leaves	Floral Bracts	Spikes	Perigynia	Achene
<i>C. amplifolia</i> (Bigleaf sedge)	stout, robust, to 3 feet tall, low-mod elev.	flat, large, 8-20 mm wide, well-distributed	leaf-like, lowest bract exceeds the inflorescence	cylindrical, 4010 cm long, about 5 mm wide, on short erect peduncles	crowded, inflated, 2.6-3.3 mm long, beak prominent	trigonous, stigmas 3
<i>C. aquatilis</i> (Aquatic sedge)	1.5-3 ft. tall, moist to wet soils, mod-high elev.	elongate, flat, 2-7 mm wide, distributed on lower third of stem	leaf-like, lowest bract exceeds the inflorescence	cylindrical, sessile or nearly so, 1.5-4.5 cm long, 3-5 mm wide	lens-shaped, 2-3.3 mm long, face nerveless	lens-shaped, stigmas 2
<i>C. breweri</i> (Brewer sedge)	loosely tufted, 5-9 in. tall, drier soils, subalpine to alpine	slender, wiry, 1-1.5 dm long, 1 mm wide, basally crowded	bractless	terminal ovoid spikelet, 1-2 cm long, 6-12 mm wide	ovate, flattened, 4-7.5 mm long, 1.8-4.5 mm wide	trigonous stigmas 3
<i>C. eurycarpa</i> (Widefruit sedge)	to 2.5 ft. tall, moist soils, low-mod elev.,	elongate, flat, 2-5 mm wide, basal sheaths reddish & filamentous	leaf-like, lowest bract exceeds the inflorescence	cylindrical, sessile or nearly so, 2-5 cm long	lens-shaped face nerveless, 2-3 mm long	lens-shaped stigmas 3
<i>C. interrupta</i> (Green-fruited s.)	densely tufted, short rhizomes, to 2 feet tall, moist-wet soil, mod-high elev.	firm, flat, 2-5 mm wide, borne lower 1/3, basal sheaths not filamentous	leaf-like, lowest bract shorter to longer than the inflorescence	cylindrical, sessile or nearly so, 3-8 cm long	lens-shaped, only 1.4-2 mm long, face nerveless, lower peryginia dispersed	lens-shaped, stigmas 2
<i>C. lanuginosa</i> (Woolly sedge)	loose, slender, to 3 feet tall, moist soils, low-mod elev.	flat, 2-5 mm wide, borne well above the base, sheaths reddish & filamentous	leaf-like, lowest bract exceeds the inflorescence	cylindrical, sessile or nearly so, 1-4 cm long	turgid, greenish to brownish, densely short-hairy, obscurely nerved, 3.3-5 mm long	trigonous, stigmas 3
<i>C. lasiocarpa</i> (Slender sedge)	stiff, wiry, to 3 feet tall, wet boggy sites, mod elev.	folded, narrow, 1-1.5 mm wide, borne well above base of the stem	leaf-like, lowest bract exceeds the inflorescence	cylindrical, sessile or nearly so, 1-4 cm long	turgid, brownish, densely short-hairy, obscurely nerved, 2.8-4.3 mm long	trigonous, stigmas 3

Bigleaf Sedge

Carex amplifolia

CAAM

Range: Northern California east to northern Idaho, north to British Columbia; all of central Oregon.

Indicator Value: Water-worked sites such as active channel shelves and overflow channels, springs; low to moderate elevations.

Palatability: Low in palatability to livestock, deer and elk.

Fire sensitivity: Mode - Rhizome extension.

Regeneration Period - Very rapid.

Resistance - Very resistant.

Cultural Significance: Fiber for mats and bedding; roots edible.



Bigleaf Sedge

Carex amplifolia

CAAM

Description: Stout perennial to 3 feet (0.9 meters) tall from deep creeping rhizomes; stems sharply triangular, the leaves well distributed up and down the stem.

Leaves: Notably large, flat, 8-20 mm wide and to 50 cm long, well distributed.

Flowers: Borne on several narrow, elongate, cylindrical spikes, terminal spike staminate, the others pistillate and 4-10 cm long; the lowest floral bract exceeding the inflorescence.

Perigynia: Slightly inflated, 2.6-3.3 mm long including the prominent beak.

Fruit: Trigonous achene; stigmas 3.



Aquatic Sedge

Carex aquatilis

CAAQ

Range: Circumboreal, across North America, south to California, New Mexico and New Jersey; Ochoco and Fremont National Forests.

Indicator Value: Moist to wet meadows, lodgepole pine wetlands, marshes, bogs, streambanks and the margins of lakes and ponds; moderately high elevations.

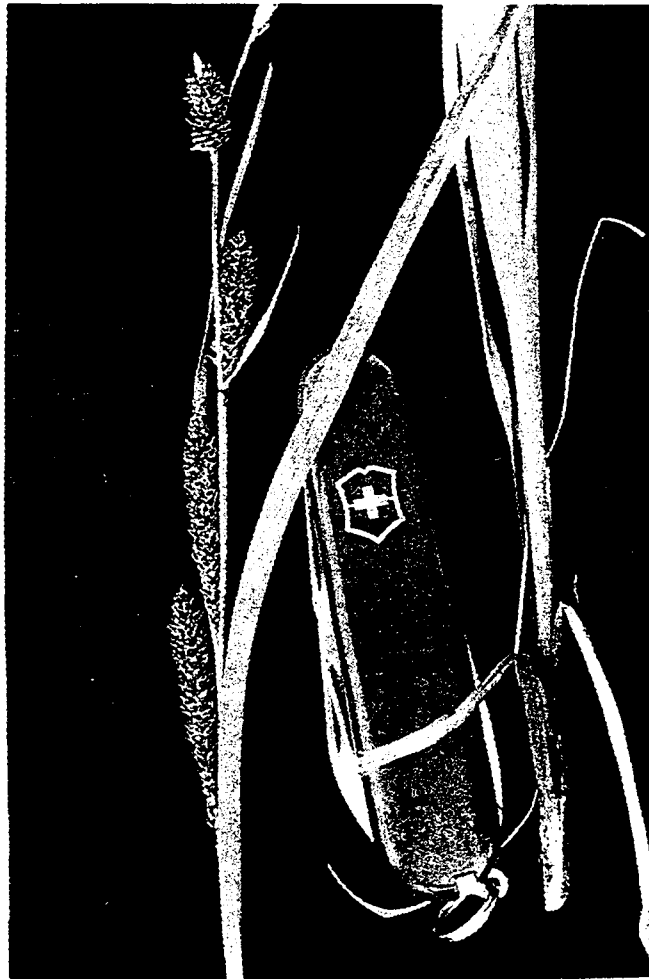
Palatability: Moderately high palatability for livestock, deer and elk.

Fire sensitivity: Mode - Rhizome extension.

Regeneration Period - Very rapid.

Resistance - Very resistant.

Cultural Significance: Fiber for mats and bedding; roots edible; component of wild hay.



Aquatic Sedge

Carex aquatilis

CAAQ

Description: Sod-forming perennial to 3 feet (0.9 meters) tall from stout, deep, creeping rhizomes; stems sharply triangular, sparsely leafy from the lower third.

Leaves: Green, elongate, flat, mostly 2-7 mm wide.

Flowers: Borne in 3 to 7 long cylindrical sessile spikes per stem, the terminal spikes staminate; lowest bract blade-like, exceeding the spikes.

Perigynia: Lens-shaped, flattened, 2.0-3.3 mm long including the beak, nerveless except for marginal nerves; pistillate scales reddish-brown to purplish-black usually with pale midrib.

Fruit: Lens-shaped achene; stigmas 2.



Brewer Sedge

Carex breweri

CABR

Range: In the Cascade Mountains from southern British Columbia to the Sierra Nevadas; Deschutes and Winema National Forests.

Indicator Value: Well-drained meadows, drainages and basins where snowmelt is late and the snow free growing season is less than 3 months long; subalpine and alpine.

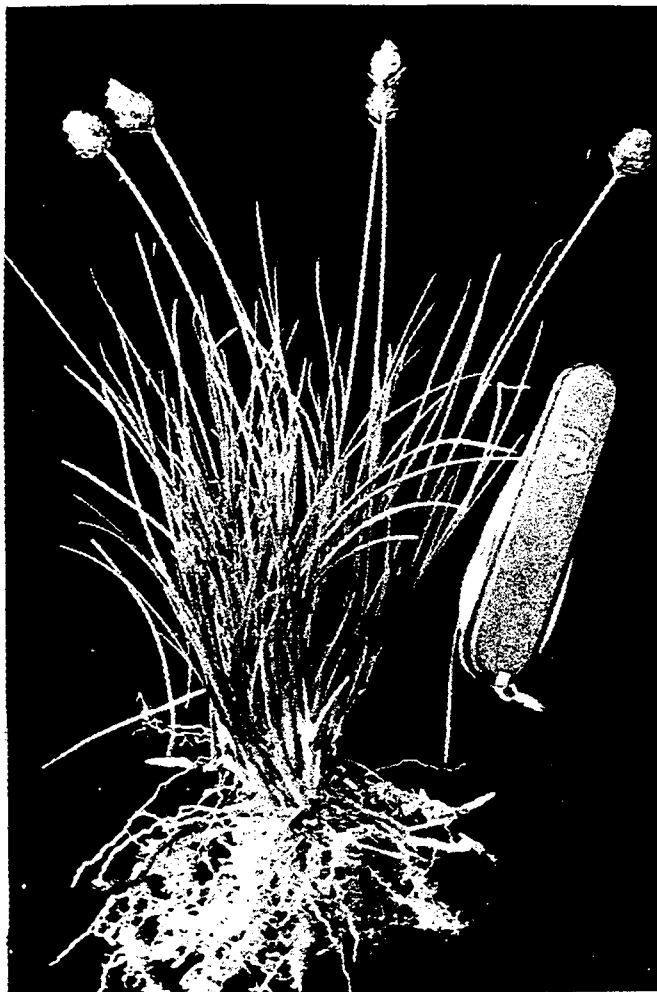
Palatability: Probably low in palatability to livestock, deer and elk except for the seed heads.

Fire sensitivity: Mode - Rhizome extension.

Regeneration Period - Rapid.

Resistance - Moderately resistant.

Cultural Significance: None known.



Brewer Sedge

Carex breweri

CABR

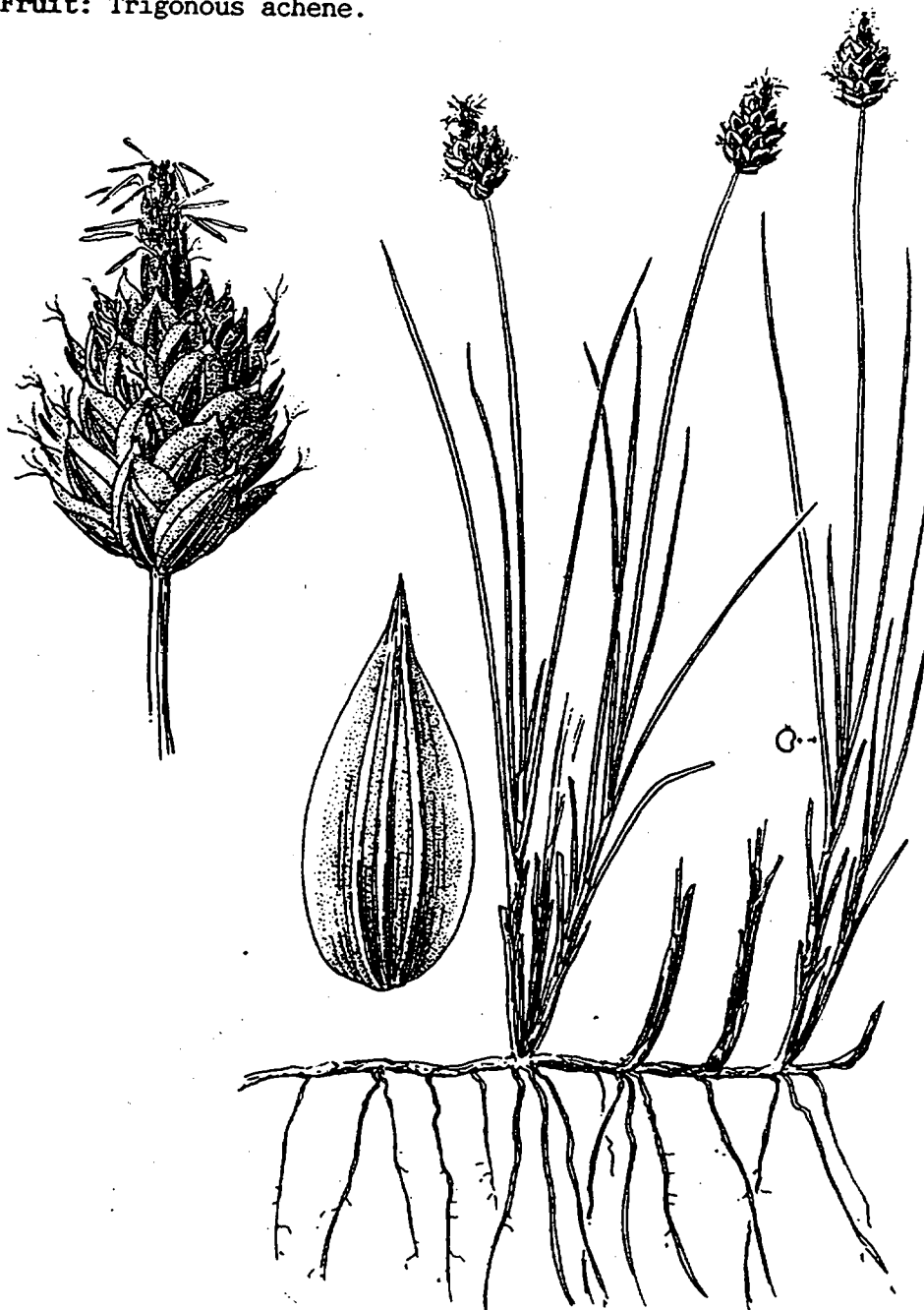
Description: Loosely tufted plants to 12 inches (0.3 meters) tall from short creeping rhizomes.

Leaves: Stiff and wiry, 1 mm wide and 10-15 cm long, crowded toward base.

Flowers: Spikes solitary, bractless, stout, ovoid, 1-2 cm long and 6-12 mm wide.

Perigynia: Numerous, ovate or broadly elliptic, 4-7.5 mm long.

Fruit: Trigonous achene.



Widefruit Sedge

Carex eurycarpa

CAEU

Range: In and near the Cascade Mountains from southern Washington to the Sierra Nevada in central California; Deschutes, Winema and west fringe of the Fremont National Forests.

Indicator Value: Moist meadows, active floodplains, streambanks and drainages; low to moderate elevations.

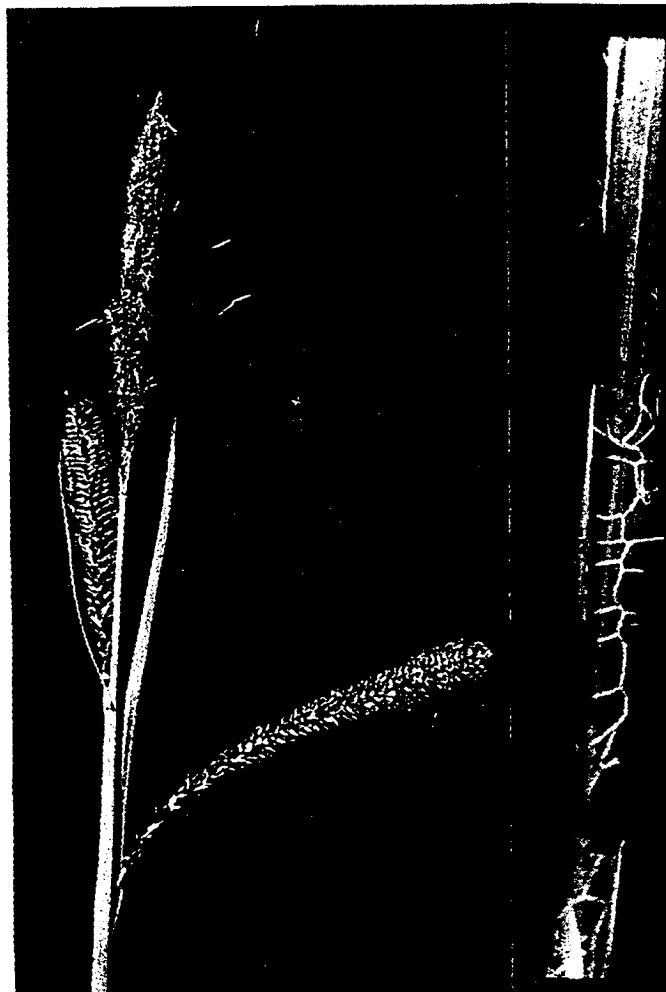
Palatability: Moderately high in palatability to livestock, deer and elk.

Fire sensitivity: Mode - Rhizome extension.

Regeneration period - Very rapid.

Resistance - Very resistant.

Cultural Significance: Fiber for mats and bedding; roots edible; component of wild hay.



Widefruit Sedge

Carex eurycarpa

CAEU

Description: Sod-forming perennial to 2 1/2 feet (0.8 meters) tall from long creeping rhizomes; stems triangular, the leaves well-distributed along the lower half of the stem.

Leaves: Flat, 2-5 mm wide; basal sheaths reddish, breaking and leaving filaments when expanding.

Flowers: Borne on several erect cylindrical spikes, the spikes sessile or peduncles much shorter and not nodding in comparison to Sitka sedge, terminal spikes staminate, lower spikes pistillate and 2-5 cm long; floral bracts leaf like, the lowest one exceeding the inflorescence.

Perigynia: Lens-shaped, nerveless except on the margins, 2.1-3.0 mm long.

Fruit: Lenticular achene; stigmas 3.



Green-fruited Sedge

Carex interrupta

CAIN

Range: Labrador to Alaska, south to California, Colorado, Michigan and Massachusetts; Deschutes and Winema but unknown on the Ochoco and Fremont National Forests.

Indicator Value: Meadows, streambanks, lakeshores and other wet places; moderately high to high elevation.

Palatability: Moderate for livestock, deer and elk.

Fire sensitivity: Mode - Rootstock regeneration and seed germination.
Regeneration Period - Rapid.
Resistance - High.

Cultural Significance: Fiber for mats and bedding; roots edible.

NO PHOTO AVAILABLE

Green-fruited Sedge

Carex interrupta

CAIN

Description: Densely tufted perennial to 2 feet tall (0.6 meters), rarely from short rhizomes; leaves loosely-distributed on the lower half of the stem.

Leaves: Flat, 2-5 mm wide.

Flowers: Borne on several cylindrical spikes, terminal spikes staminate, lower spikes pistillate and 3-8 cm long; lowest floral bract leaf-like and shorter to longer than the inflorescence.

Perigynia: Lens shaped, very small (1.4-2.0 mm long) nerveless except for the marginal nerves; lower perigynia more or less dispersed.

Fruit: Lenticular achene; stigmas 2.



Woolly Sedge

Carex lanuginosa

CALA3

Range: Throughout much of North America; all of central Oregon, most common on the Fremont and Ochoco National Forests.

Indicator Value: Moist, well-drained floodplains and poorly-drained basins; low to moderate elevations.

Palatability: Highly palatable to livestock, deer and elk.

Fire sensitivity: Mode - Rhizome extension.

Regeneration Period - Very rapid.

Resistance - Very resistant.

Cultural Significance: Fiber for mats and bedding; roots edible; component of wild hay.



Woolly Sedge

Carex lanuginosa

CALA3

Description: Plants to 3 feet (0.9 meters) tall from well developed creeping rhizomes; stems loose and flexible, the leaves borne well above the base of the stem.

Leaves: Bright green, flat, 2-5 mm wide; basal sheaths reddish, breaking and leaving filaments when expanding.

Flowers: Borne in 3 to 6 erect, sessile, cylindrical spikes, 1-4 cm long, terminal spikes staminate; lowest floral bract leaf-like, typically exceeding the inflorescence.

Perigynia: Greenish to light brownish, densely short-hairy, obscurely veined, turgid, 3.3-5 mm long.

Fruit: Trigonous achene; stigmas 3.



Slender Sedge

Carex lasiocarpa

CALA4

Range: Circumboreal; south in the Cascade Mountains through the Deschutes and Winema National Forests.

Indicator Value: Poorly drained basins and lake shores with deep sedge peat soils; moderate elevations.

Palatability: Low in palatability to livestock, deer and elk.

Fire sensitivity: Mode - Rhizome extension.

Regeneration Period - Very rapid.

Resistance - Very resistant.

Cultural Significance: None known.



Slender Sedge

Carex lasiocarpa

CALA4

Description: Erect, stiff, narrow perennials to 3 feet (0.9 meters) tall from well-developed creeping rhizomes.

Leaves: Very narrow, 1-1.5 mm wide, folded on midrib, borne well above the base of the stem; basal sheaths brownish, breaking and leaving filaments when expanding.

Flowers: Borne in 3 to 6 erect, sessile, cylindrical spikes, 1-4 cm long, terminal spikes staminate; the lowest floral bract often surpassing the inflorescence.

Perigynia: Brownish, densely short-hairy, obscurely-nerved, turgid, 2.8-4.3 mm long.

Fruit: Trigonous achene; stigmas 3.



Nebraska Sedge

Carex nebraskensis

CANE

Range: Washington to California and New Mexico, east to South Dakota and Nebraska; widespread east of the Cascade summit except infrequent on the Deschutes National Forest.

Indicator Value: Wet to moist meadows, marshes, lodgepole pine wetlands, streambanks and ditches. In many areas season long grazing leads to dominance by Nebraska sedge; low to moderate elevations.

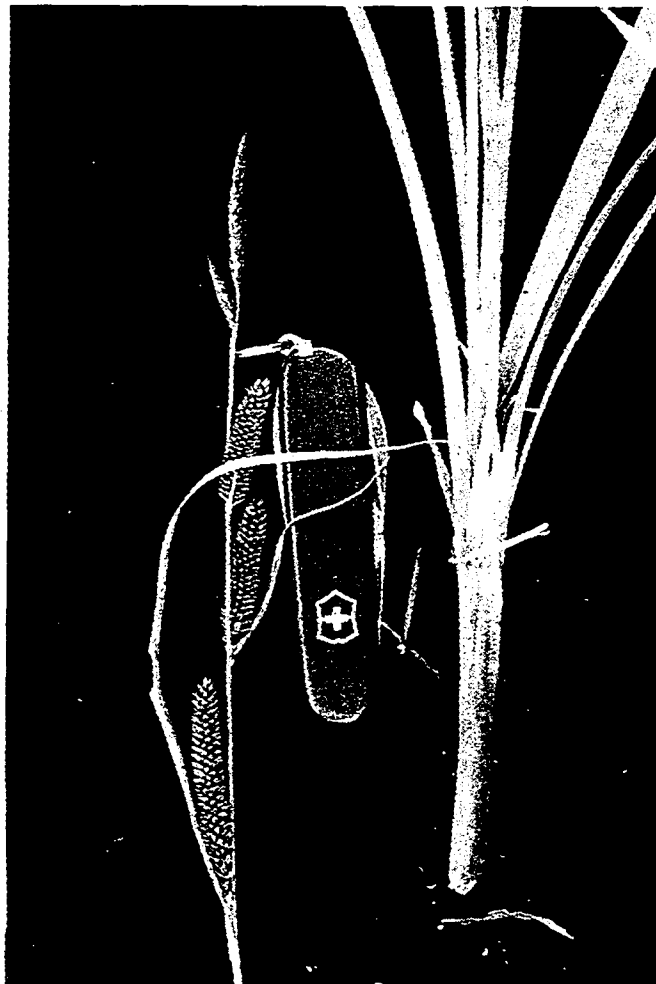
Palatability: Very palatable to livestock and can withstand a high degree of defoliation as well as trampling without apparent damage.

Fire sensitivity: Mode - Rhizome extension.

Regeneration period - Very rapid.

Resistance - Very resistant.

Cultural Significance: Fiber for mats and bedding; roots edible; component of wild hay.



Nebraska Sedge

Carex nebraskensis

CANE

Description: Coarse, stout, sod-forming perennial to 3 feet (0.9 meters) tall from stout, deep, creeping rhizomes; stems sharply triangular, leaves predominantly from near the base.

Leaves: Blue-glaucous, firm, flat, typically 4-10 mm wide.

Flowers: Borne in 3 to 6 long cylindrical spikes per stem, terminal spikes staminate; lowest floral bract elongate and leaf like, equalling or exceeding the spikes.

Perigynia: Lens-shaped, 3-4 mm long including the beak, the surface prominently 5 to 10 nerved on both faces.

Fruit: Lenticular achene; stigmas 2.



Black Alpine Sedge

Carex nigricans

CANI2

Range: Alpine and subalpine in the western mountains, north to Alaska; Deschutes and Winema National Forests.

Indicator Value: Moist meadows, streambanks and depressions where snowmelt is late; high elevations.

Palatability: General palatability and forage value is unknown but is assumed to be moderately low.

Fire sensitivity: Mode - Rhizome extension.

Regeneration Period - Very rapid.

Resistance - Moderately resistant.

Cultural Significance: None known.



Black Alpine Sedge

Carex nigricans

CANI2

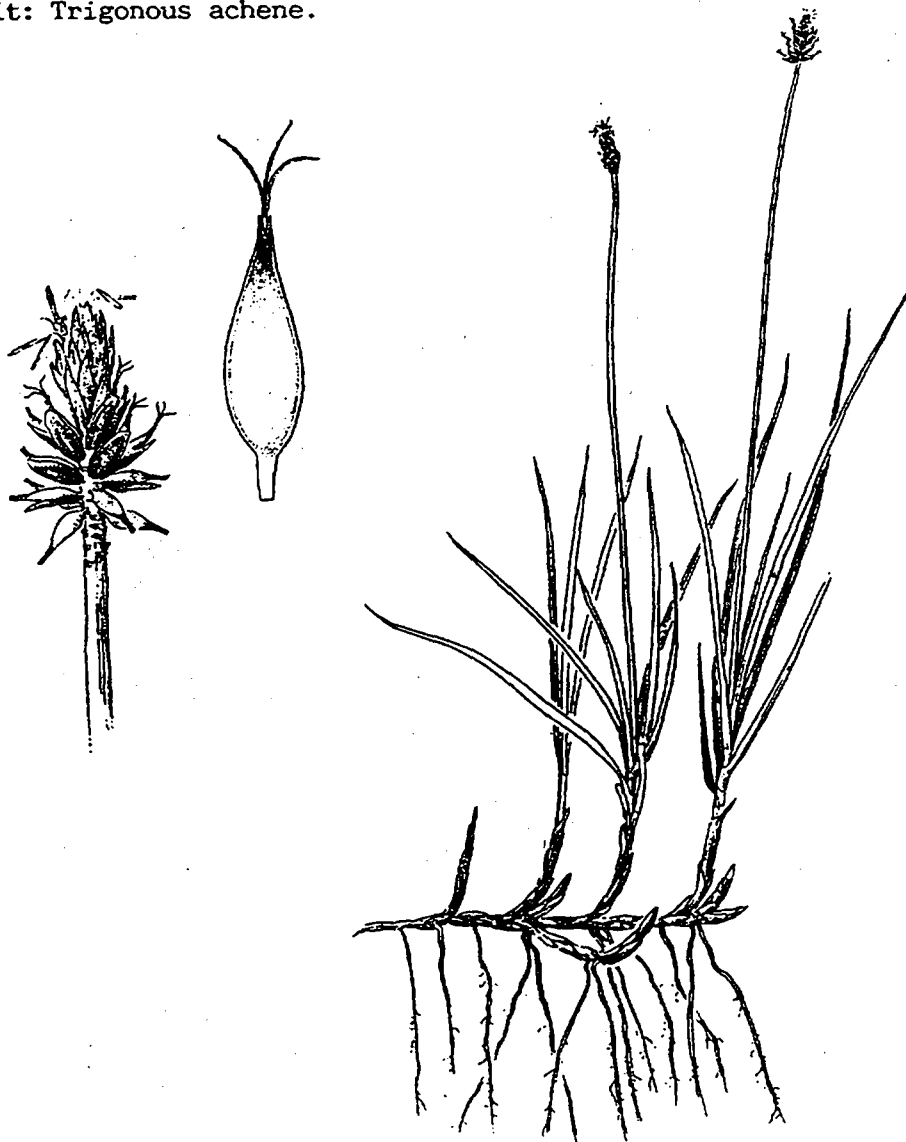
Description: Loosely tufted to sod-forming perennial to 1.3 feet (0.4 meters) tall from creeping rhizomes; stems crowded to well-spaced on drier sites, leaves crowded near the base.

Leaves: Firm, flat, soft, 4-13 cm long and 1.5-3 mm wide.

Flowers: Spikes solitary and terminal, oblong-ovoid, 1-2 cm long, bractless.

Perigynia: 20 to 50, at first appressed on the axis, but the lower ones spreading at maturity, 3-4.5 mm long.

Fruit: Trigonous achene.



Beaked Sedge

Carex rostrata

CAR02

Range: Circumboreal, south in America to California, New Mexico, Nebraska and Delaware; throughout central and south central Oregon.

Indicator Value: Seasonally to permanently flooded basins, active floodplains, wet meadows and streambanks; low to moderately high elevations.

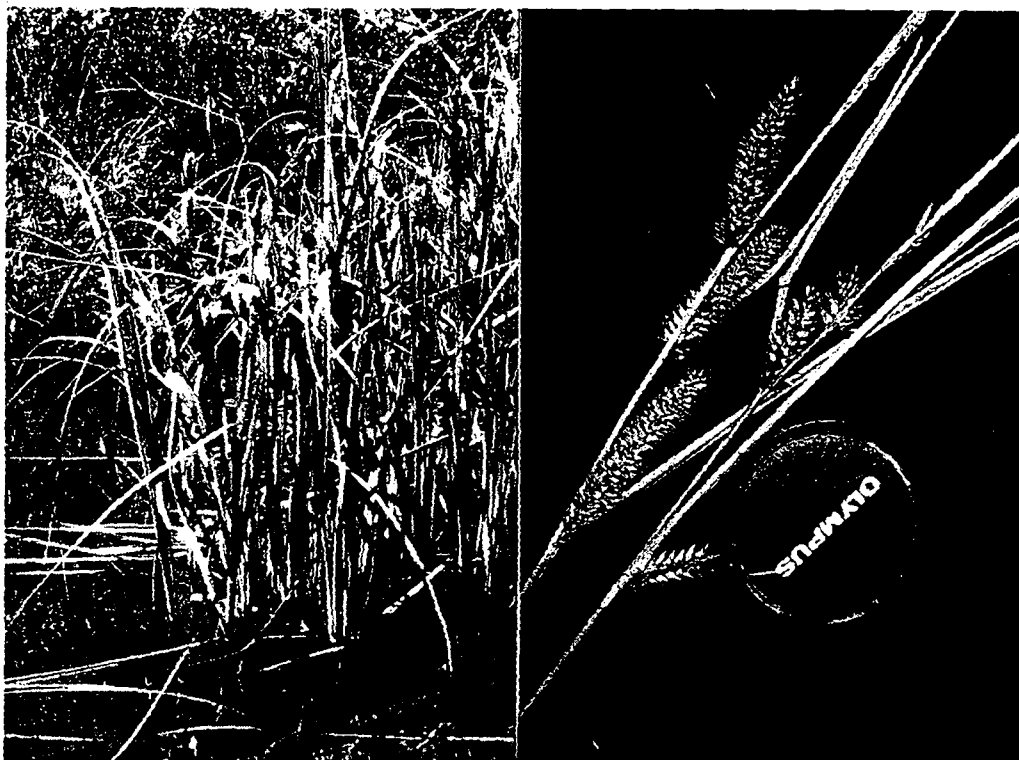
Palatability: Low to moderately palatable to livestock, deer and elk in late summer.

Fire sensitivity: Mode - Rhizome extension.

Regeneration Period - Very rapid.

Resistance - Very resistant.

Cultural Significance: Fiber for mats and bedding; roots edible; component of wild hay.



Beaked sedge/Inflated sedge

Beaked Sedge

Carex rostrata

CAR02

Description: Coarse, stout perennial to 4 feet (1.2 meters) tall from deep-seated rhizomes; stems sharply triangular, leafy throughout.

Leaves: Stout, 4-12 mm wide; strongly scabrous.

Flowers: Borne in 3 to 6 stout, cylindrical spikes per stem, terminal 1 to 3 spikes staminate, pistillate spikes 2-10 cm long and about 1 cm wide (resembling a corn cob); lowest floral bract leafy and typically much longer than the inflorescence.

Perigynia: Crowded, strongly spreading at maturity, inflated, nerved, abruptly beaked, 4-7 mm long.

Fruit: Trigonous achene; stigmas 3.



Holm's Sedge

Carex scopulorum

CASC5

Range: In all the higher mountains of the Pacific Northwest; common on the Deschutes but uncommon on the Winema and Fremont National Forests.

Indicator Value: Wet meadows, streambanks and lakeshores; subalpine and alpine.

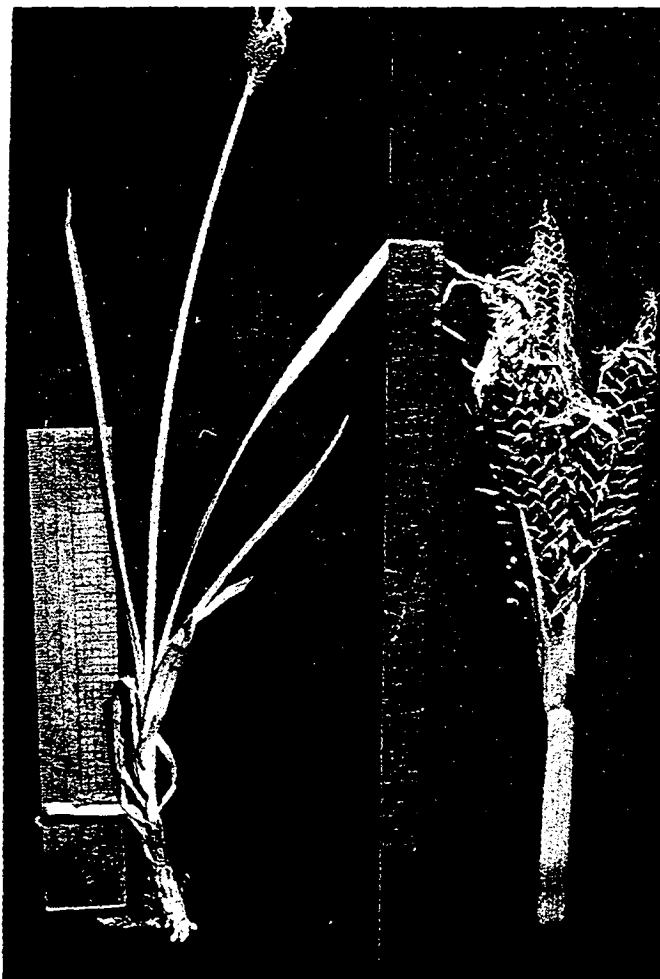
Palatability: Moderate palatability for livestock, deer and elk.

Fire sensitivity: Mode - Rhizome extension.

Regeneration Period - Very rapid.

Resistance - Very resistant.

Cultural Significance: None known.



Holm's Sedge

Carex scopulorum

CASC5

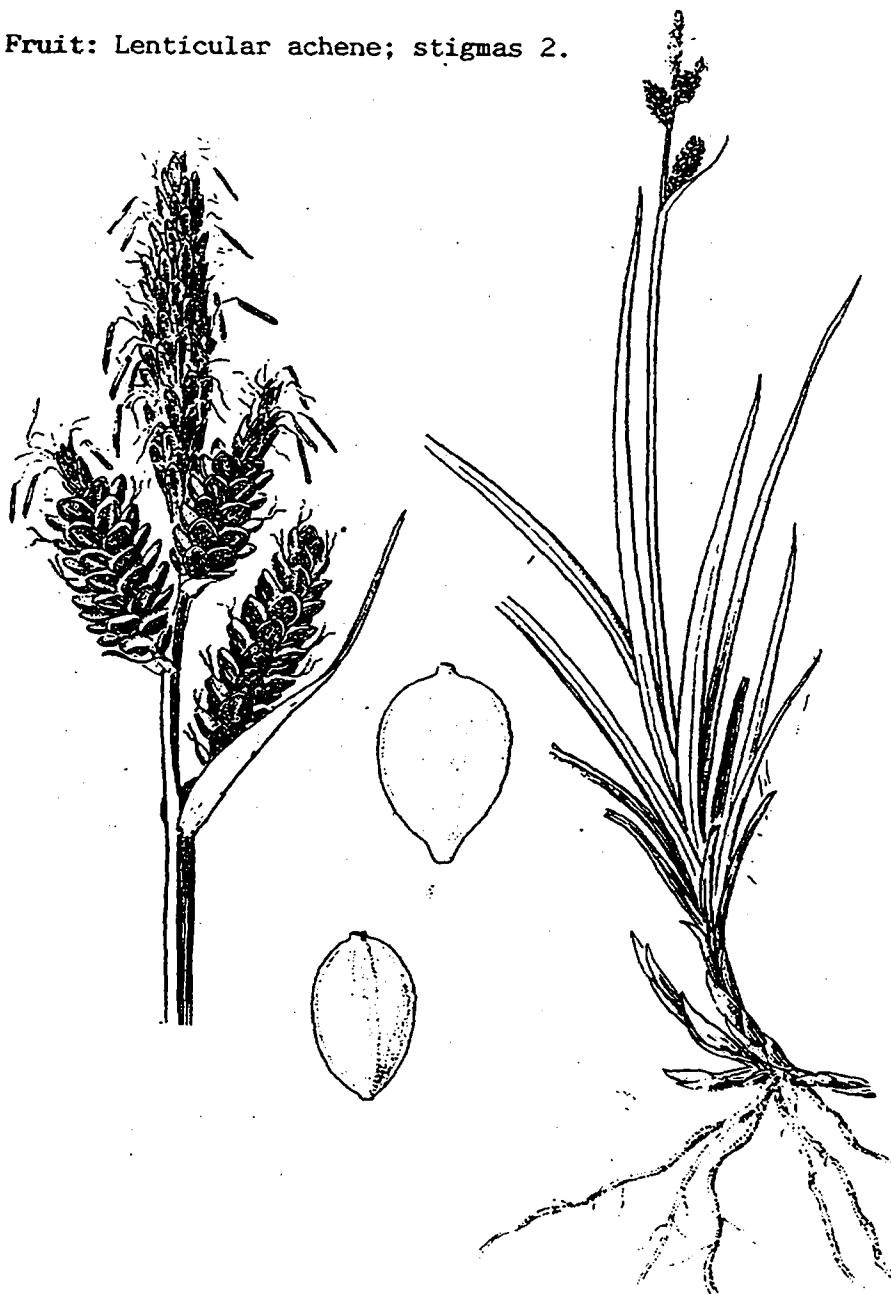
Description: Sod-forming perennial to 1 1/2 feet (0.7 meters) tall from freely branching rhizomes; stems triangular, the leaves clustered near the base of the stem.

Leaves: Firm, flat, 2-6 mm wide.

Flowers: Borne in 3 to 6 erect, rather crowded, stout, cylindrical spikes, the terminal one usually staminate, the others generally pistillate and 1-2 1/2 cm long, 5-10 mm wide; floral bracts leaf-like but the lowest one shorter than the inflorescence.

Perigynia: Lens-shaped, nerveless except on the margins, 1.8-3.3 mm long.

Fruit: Lenticular achene; stigmas 2.



Short-beaked Sedge

Carex simulata

CASI2

Range: Southern Washington to California, east to Alberta, Montana and New Mexico; widespread east of the Cascade summit.

Indicator Value: Present in many meadows and bogs where it often increases in abundance with overuse of the pasture by ungulates, otherwise abundant only in the short-beaked sedge association; low to moderately high elevations.

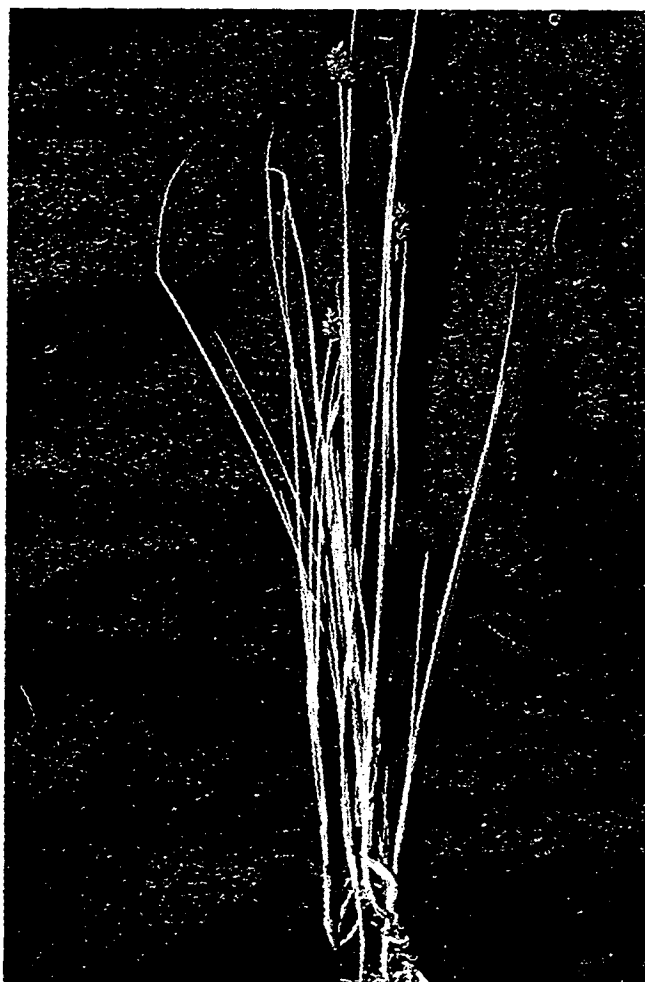
Palatability: Unpalatable to low in palatability to livestock, deer and elk.

Fire sensitivity: Mode - Rhizome extension.

Regeneration Period - Very rapid.

Resistance - Very resistant.

Cultural Significance: None known.



Short-beaked Sedge

Carex simulata

CASI2

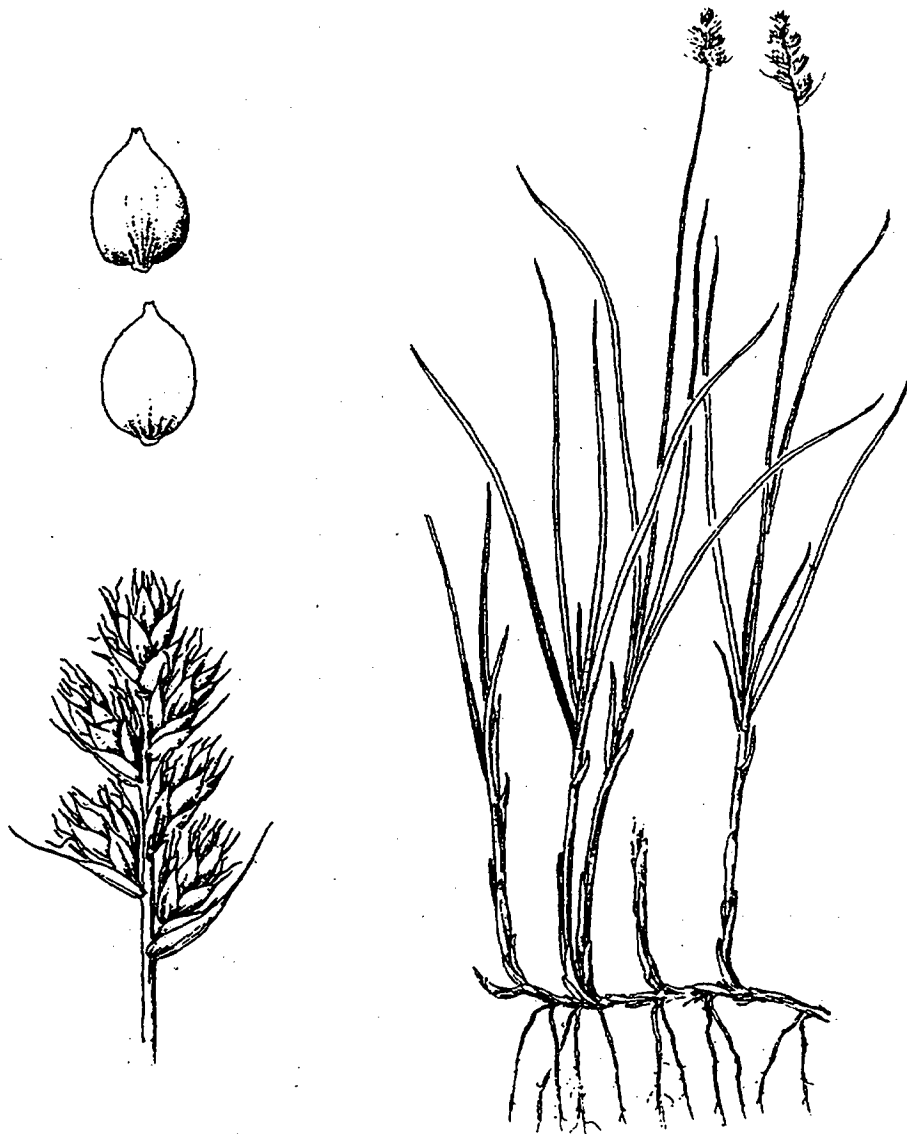
Description: Slender perennials to 2 feet (0.6 meters) tall from well developed brownish rhizomes; stems leafy from the lower third.

Leaves: Elongate, flat or nearly so, 1-2.5 mm wide.

Flowers: Borne in 8 to 25, short, sessile, spikes closely aggregated into a compact subcylindric head 1.3-3 cm. long; floral bract subtending each spike inconspicuous.

Perigynia: Relatively small, look like a tiny almond, slightly concave beneath, 1.7-2.4 mm long including the short beak.

Fruit: Lens shaped achene; stigmas 2.



Sitka Sedge

Carex sitchensis

CASI3

Range: Along the coast from Alaska to California, in and west of the Cascade Mountains, and northern Idaho; Deschutes, Winema and west edge of the Fremont National Forests.

Indicator Value: Wet floodplains, marshes and bogs; low to moderately high elevations.

Palatability: Moderately low in palatability to livestock, deer and elk.

Fire sensitivity: Mode - Rhizome elongation.

Regeneration Period - Very rapid.

Resistance - Very resistant.

Cultural Significance: Fiber for mats and bedding; roots edible; component of wild hay.



Sitka Sedge

Carex sitchensis

CASI3

Description: Stout perennial to 5 feet (1.5 meters) tall from creeping rhizomes; stems triangular, leaves spread over the lower half of the stem.

Leaves: Flat, stout, up to 1 cm wide; basal sheaths 5-10 mm thick, brownish, without filaments.

Flowers: Borne on 4 to 6 long cylindrical spikes, the terminal spikes staminate, the lower spikes pistillate and 3-10 cm long and on long nodding peduncles; the lowest floral bract extended well above the inflorescence.

Perigynia: Lens shaped, nerveless, 3-5 mm long.

Fruit: Lenticular achene; stigmas 3.



Inflated Sedge

Carex vesicaria

CAVE

Range: Circumboreal, south in North America to California, Missouri and Delaware; throughout central Oregon.

Indicator Value: Meadows, streambanks and active floodplains with shallowly flooded or wet soils; low to moderately high elevations.

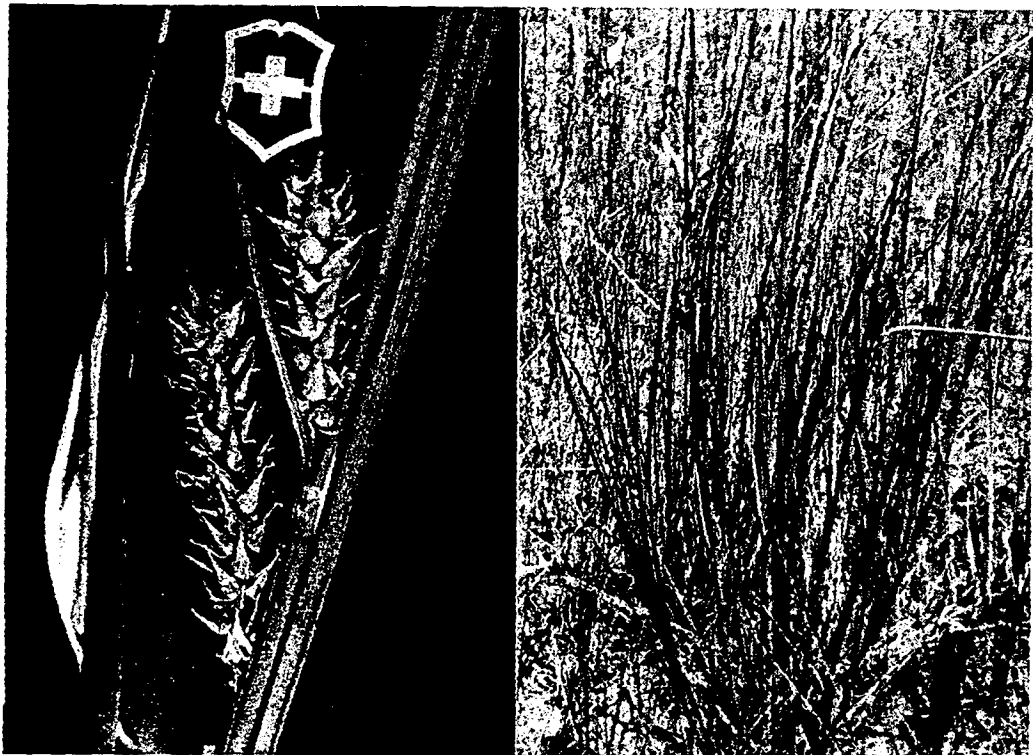
Palatability: Moderately high in palatability to livestock, deer and elk in late summer.

Fire sensitivity: Mode - Rhizome extension.

Regeneration Period - Very rapid.

Resistance - Very resistant.

Cultural Significance: Fiber for mats and bedding; roots edible; component of wild hay.



Inflated Sedge

Carex vesicaria

CAVE

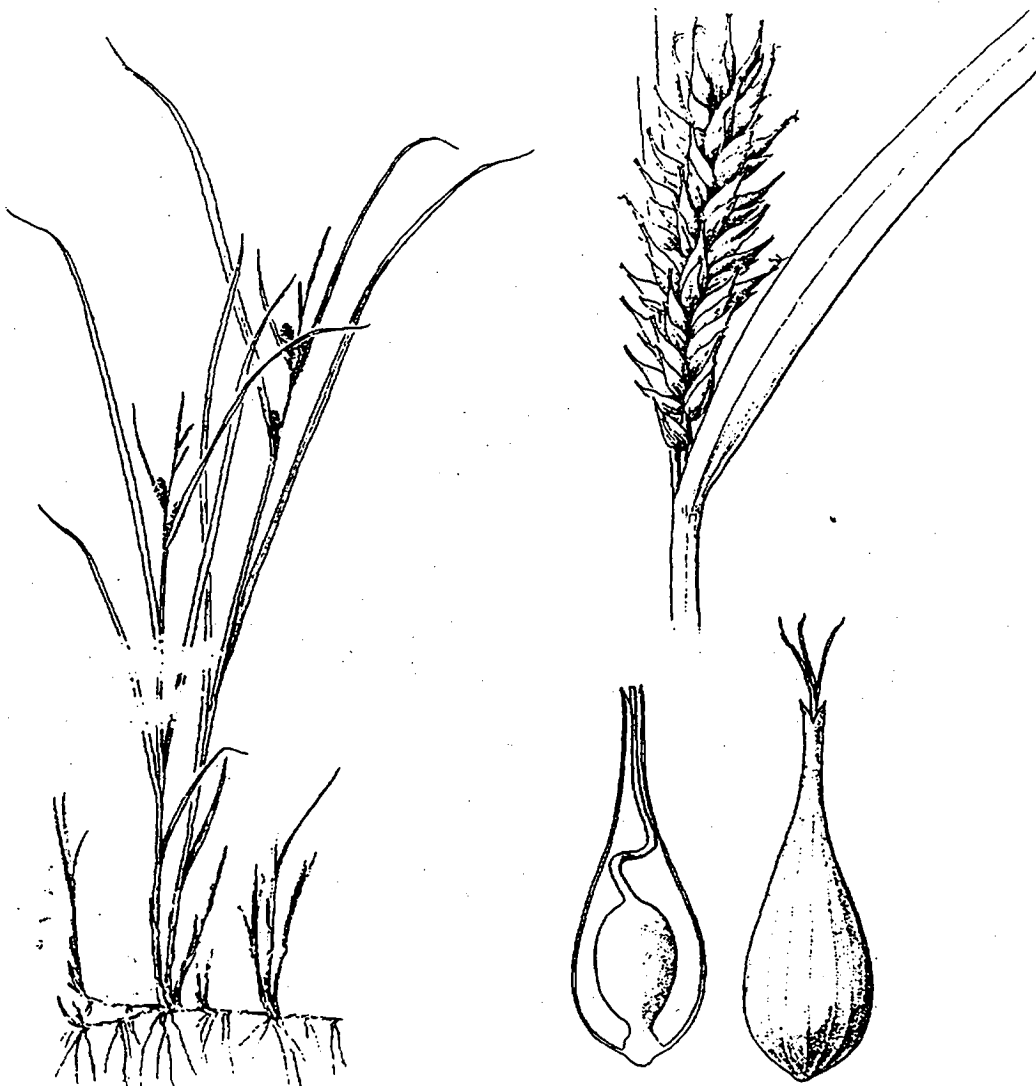
Description: Stout perennial to 3 feet (0.9 meters) tall, densely to loosely clustered on rather short, stout, branching rhizomes; stems sharply triangular, leafy throughout.

Leaves: Stout, flat, 3-8 mm wide.

Flowers: Borne on long cylindrical spikes, the terminal 2 to 3 staminate, pistillate spikes stout and 2-7 cm long and about 1 cm wide; lowest floral bract leaf-like and much longer than the inflorescence.

Perigynia: Inflated, nerved, gradually tapering beak, ascending and less crowded in comparison to beaked sedge; .

Fruit: Trigonous achene; stigmas 3.



Creeping Spikerush

Eleocharis palustris

ELPA

Range: Widespread in the cold-temperate regions of the Northern Hemisphere; common throughout central Oregon.

Indicator Value: Seasonally to permanently flooded sites such as the margins of reservoirs, ponds, lakes and stockponds or in internally drained basins; low to moderately high elevations.

Palatability: Low palatability to all classes of livestock and big game so that its use is light even in dry years.

Fire sensitivity: Mode - Rhizome extension.
Regeneration Period - Very rapid.
Resistance - Very resistant.

Cultural Significance: Mats, small baskets.



Creeping Spikerush

Eleocharis palustris

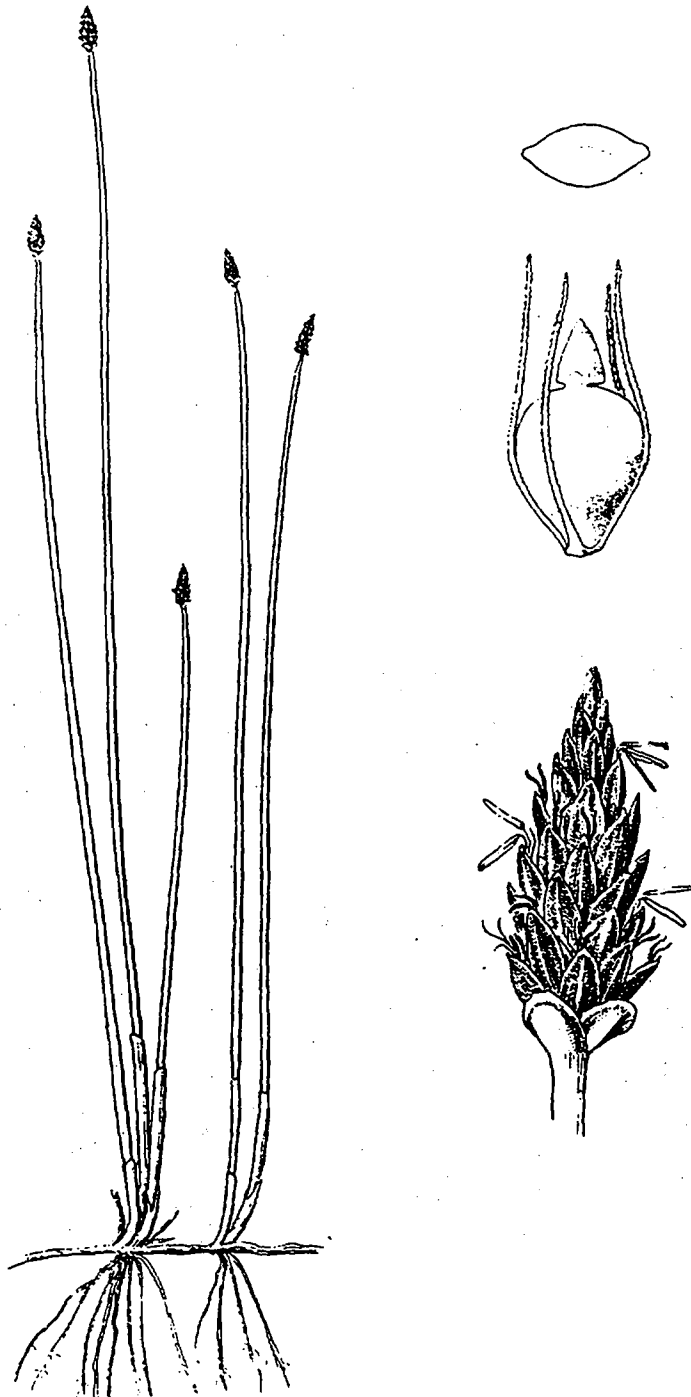
ELPA

Description: Slender perennial to 3 feet (0.9 meters) tall from stout creeping rhizomes; stems terete, apparently leafless.

Leaves: All basal or nearly so, reduced to mere sheaths.

Flowers: Terminal solitary spikelets, 5-23 mm long.

Fruit: Lenticular brown achene, 1.5-2.5 mm long including the distinctly capped tubercle; 4 perianth bristles; stigmas 2.



Few-flowered Spikerush

Eleocharis pauciflora

ELPA2

Range: Circumboreal, south to California, Illinois and New Jersey; throughout central Oregon.

Indicator Value: Present in many meadow associations but most characteristic of bog-forming sites; moderate to high elevations.

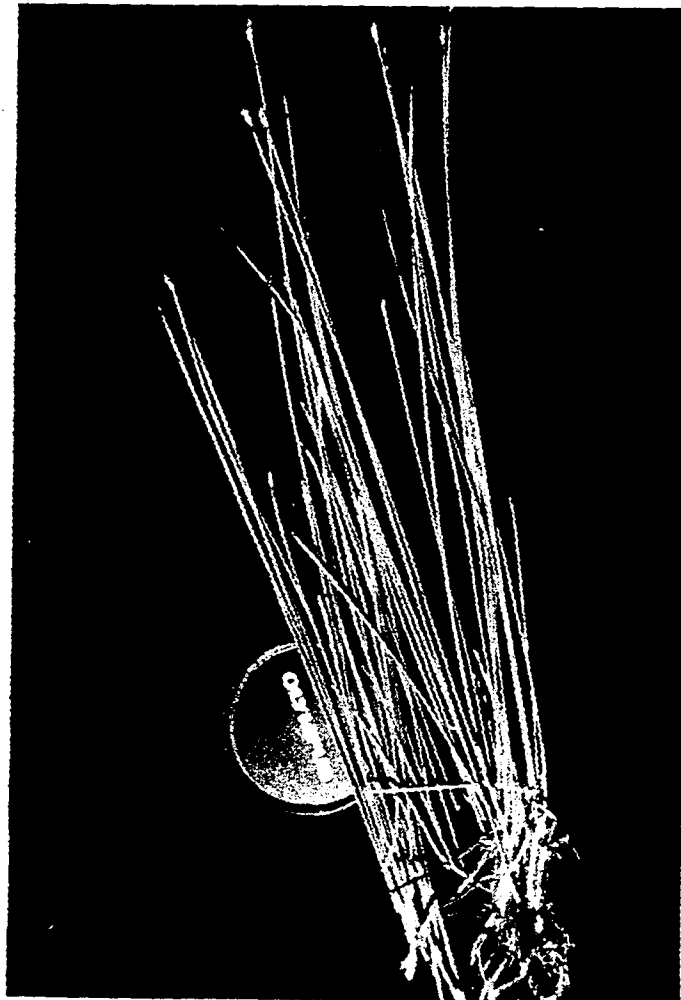
Palatability: Low palatability for livestock, deer and elk.

Fire sensitivity: Mode - Rhizome extension.

Regeneration Period - Very rapid.

Resistance - Very resistant.

Cultural Significance: Mats, small baskets, bedding.



Few-flowered Spikerush

Eleocharis pauciflora

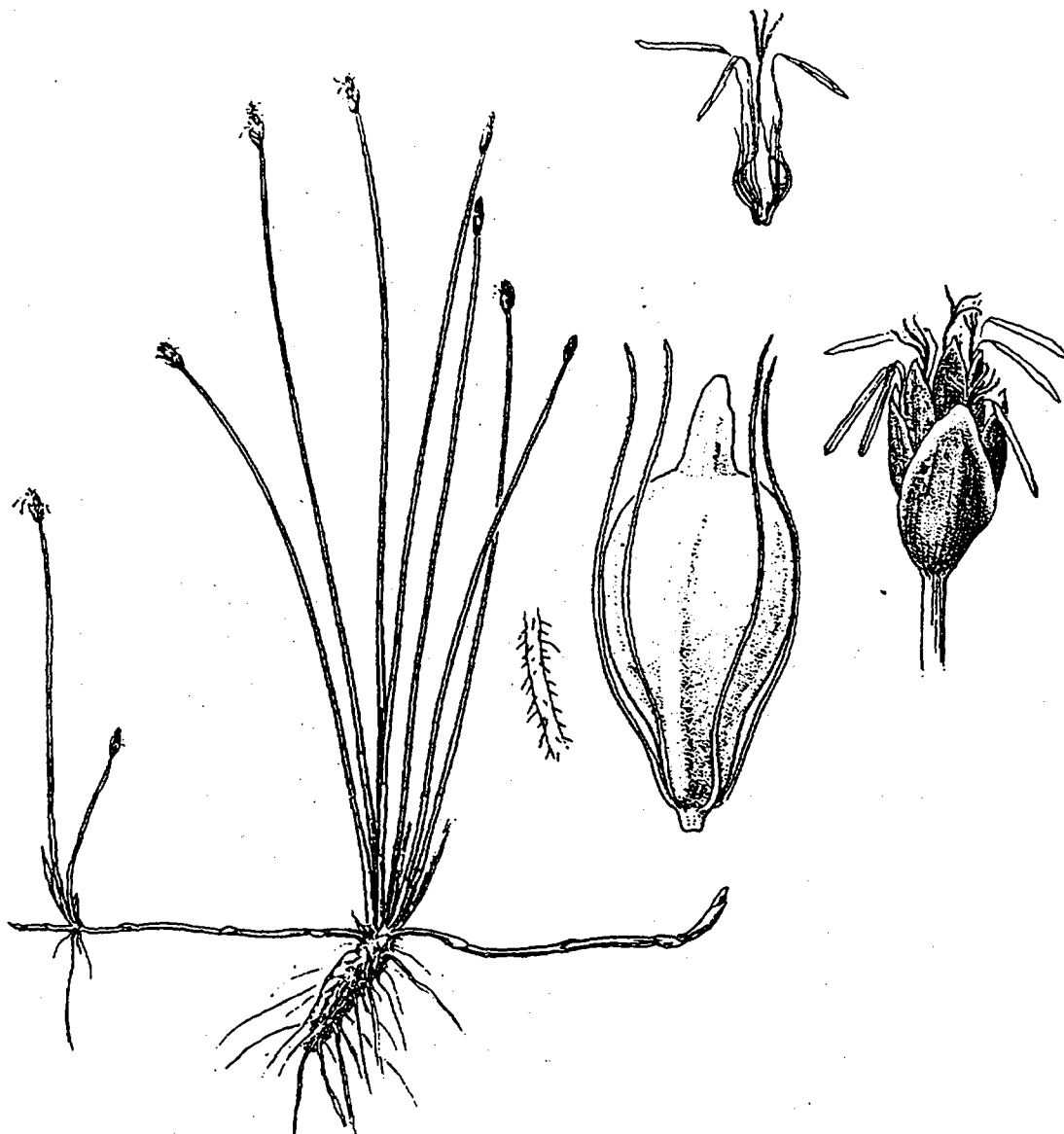
ELPA2

Description: Perennial to 1 foot (0.3 meters) tall, clustered on short to long rhizomes; stems terete, slender, seldom as much as 1 mm thick, leafless.

Leaves: All basal or nearly so, reduced to mere scales.

Flowers: A single, terminal, 3 to 9 flowered spikelet, 4-8 mm long.

Fruit: Achene broadest above middle, 1.9-2.6 mm long including the short stylar beak; stigmas 3.



Baltic Rush

Juncus balticus var. *balticus*

JUBAB

Range: Widespread over much of temperate and arctic North America and central Oregon.

Indicator Value: Moist meadows and marshes; dominates overused pastures where Baltic rush has replaced normal climax dominants; also indicates poor forage condition on Kentucky bluegrass and Nebraska sedge community types; low to moderate elevation.

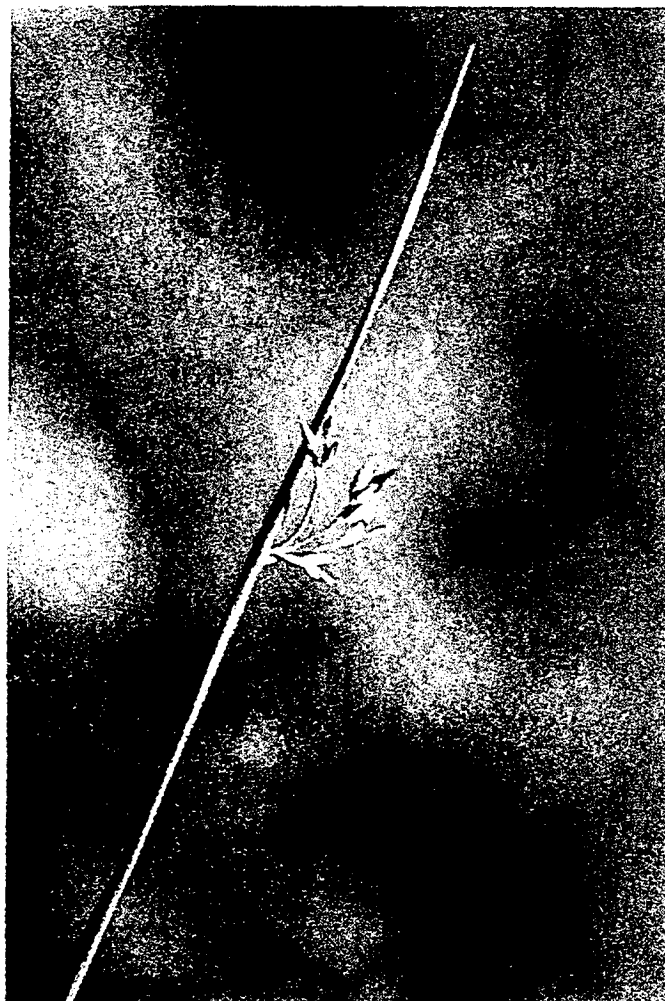
Palatability: Moderately low palatability to livestock, deer and elk.

Fire sensitivity: Mode - Rhizome extension.

Regeneration Period - Very rapid.

Resistance - Very resistant.

Cultural Significance: Baskets, mats, bedding.



Baltic Rush

Juncus balticus var. *balticus*

JUBAB

Description: Vigorous rhizomatous perennial to 2 feet (0.6 meters) tall; stems wiry, firm, 1.5-3 mm thick.

Leaves: Largely reduced to bladeless sheaths.

Flowers: 10 to 50 flowered in compact to loose inflorescence, appearing lateral; floral bract terete, 5-20 cm long, appearing to be a continuation of the stem.

Fruit: Ovoid capsule.



Drummond Rush

Juncus drummondii

JUDR

Range: Alaska to California and east to the Rocky Mountains; Deschutes and Winema National Forests.

Indicator Value: Moist to dry meadows, streambanks and ridges; alpine and subalpine.

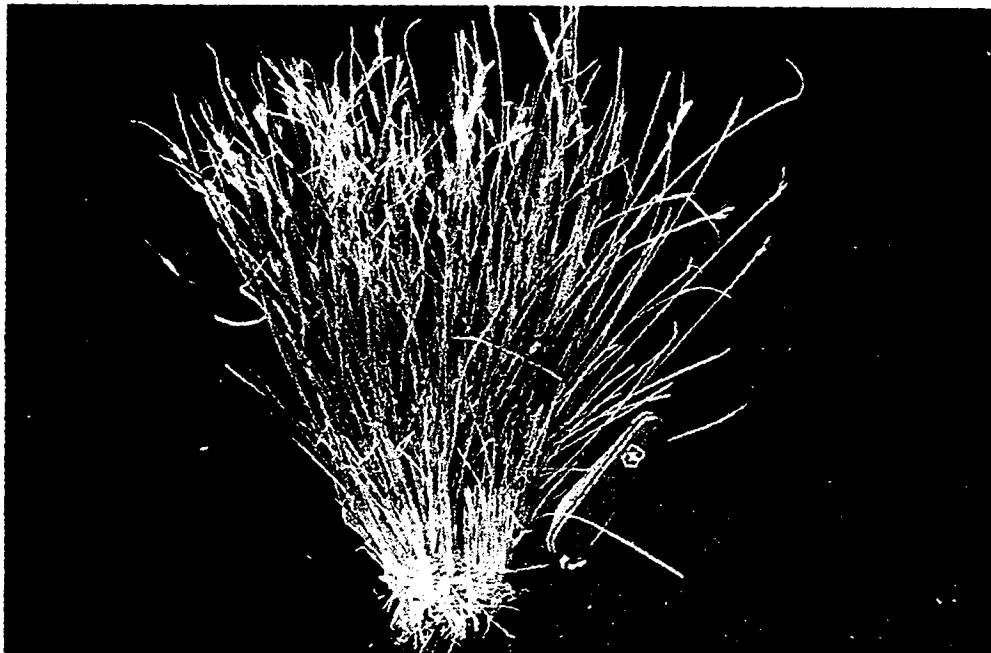
Palatability: Low in palatability to livestock, deer and elk.

Fire sensitivity: Mode - Seed, residual plant survival.

Regeneration Period - Moderate.

Resistance - Moderate to resistant.

Cultural Significance: None known.



Drummond Rush

Juncus drummondii

JUDR

Description: Strongly tufted perennial to 1 foot (0.3 meters) tall, forming small mats; stems numerous, terete, largely leafless.

Leaves: Leafless or bristle-like.

Flowers: Flowers 1 to 3, closely aggregated but discrete, with two brownish bracts.

Fruit: Blunt and slightly retuse capsule containing nutlike seeds.



Nevada Rush

Juncus nevadensis var. *nevadensis*
Juncus nevadensis var. *columbianus*

JUNEN
JUNEC

Range: From near the coast to the mountains, southern British Columbia to California, east to the Rocky Mountains; all of central Oregon.

Indicator Value: Wet places, especially the margins of streams and lakes; low to moderate elevations in the mountains.

Palatability: Moderately low palatability to livestock, deer and elk.

Fire sensitivity: Mode - Rhizome extension.
Regeneration Period - Rapid.
Resistance - Resistant.

Cultural Significance: None known.



Nevada Rush

Juncus nevadensis var. *nevadensis*
Juncus nevadensis var. *columbianus*

JUNEN
JUNEC

Description: Strongly rhizomatous perennial to 2 feet (0.6 meters) tall; stems arising more or less single from the rhizomes.

Leaves: Leaves 1 to 3, blades semi-terete, with small rounded auricles about 1-3 mm long.

Flowers: Terminal, usually well above the blades and much longer than the involucral bracts, 2-8 cm long; heads mostly more than 5 and single on ascending branches of the inflorescence, dark brown; var. *columbianus* heads less than 5 and aggregated in clusters, light brown.



var. *nevadensis*



var. *columbianus*

Small-fruit Bulrush

Scirpus microcarpus

SCMI

Range: Throughout the western United States and southern Canada; all of central Oregon.

Indicator Value: Water-worked sites such as active channel shelves and overflow channels, springs; low to moderate elevations.

Palatability: Low palatability to livestock, deer and elk.

Fire sensitivity: Mode - Rhizome extension.

Regeneration Period - Very rapid.

Resistance - Very resistant.

Cultural Significance: Baskets, bedding.



Small-fruit Bulrush

Scirpus microcarpus

SCMI

Description: Coarse perennials to 4 feet (1.2 meters) tall from well-developed, creeping rhizomes; stems triangular, leaves well-distributed throughout.

Leaves: Flat, stout blades 8-15 mm wide, and 30 cm or more long; basal sheaths reddish-purple.

Flowers: Numerous small spikelets borne in small clusters in a compound, terminal cyme.

Fruit: Pale, lens-shaped achene, 2.5-4 mm long including the small stylar apiculus; 4 perianth bristles.



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